

DR. RYDER'S PSYCHOLOGY AND YOU

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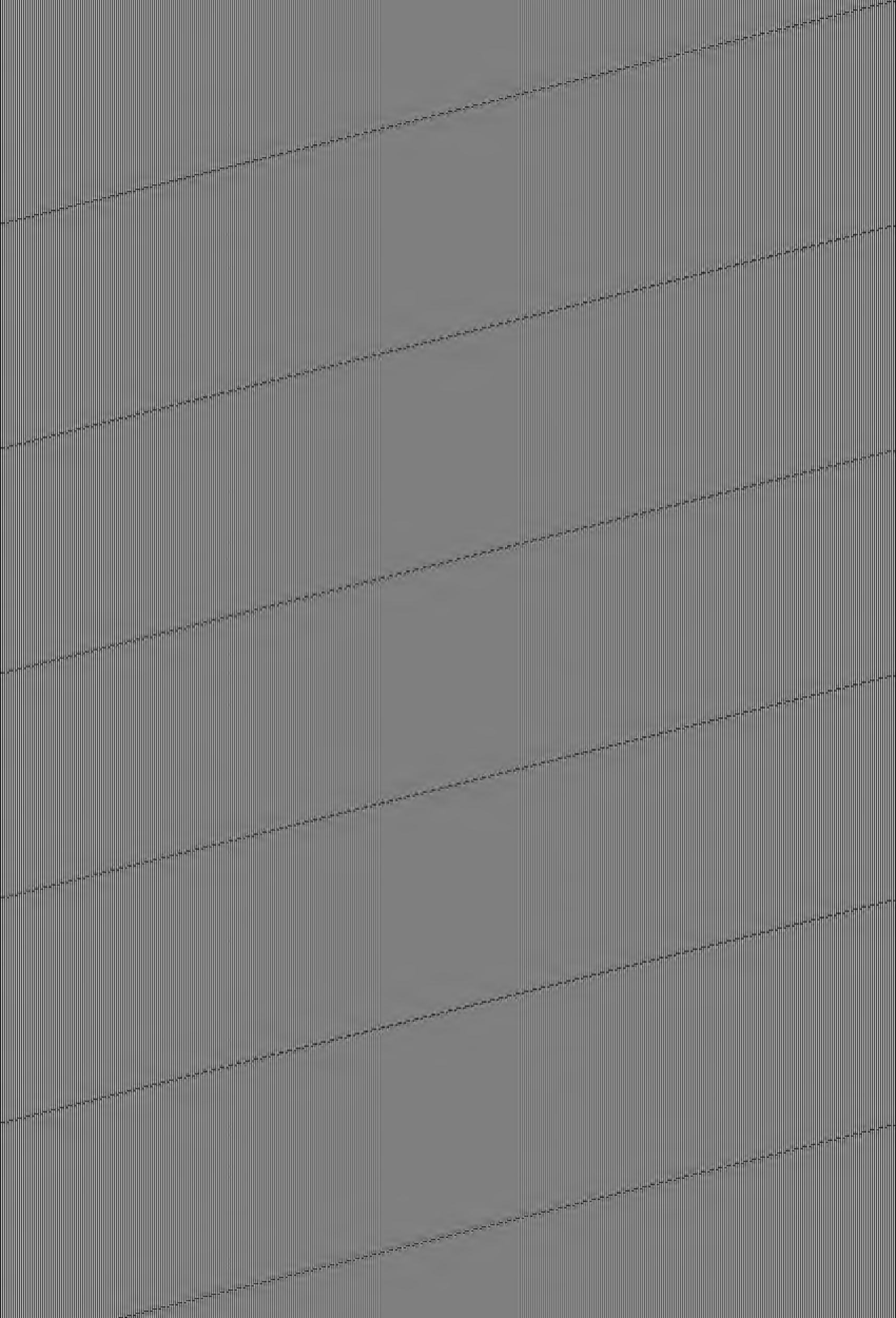
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RIGHT WAY BOOKS

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TO MY WIFE

PREFACE

It may be thought that there are enough books on psychology already on sale, so that another is scarcely necessary. Yet there is a reason for this one—this is it. Practically all the many books now available fall into two main classes, namely, those that are text-books (general treatises for students but not suitable for the general reader who does not wish to read masses of facts and figures but who wants to get a rough but adequate idea of the subject) and those that are written from the point of view of one particular theory. These latter may be very popular and full of "practical" advice, or they may be erudite and so too heavy for the average reader. In any case, the newcomer to psychology would get a wrong idea of the subject, for not knowing that there were other theories, he would tend to believe that all that was written in the book he happened to pick up was generally agreed on by all psychologists. The reader would, in fact, be the victim of propaganda.

It does seem, therefore, that there is room for a book that outlines various theories but does not do so before telling something of the facts on which all psychologists are agreed. As will be seen later, there is, at the moment, much theory and little fact in this new and fascinating science, so that the beginner can be easily misled. Much of the popular writing on the subject is, unfortunately, of the propaganda type mentioned above and tends to emphasise one only of the several theories put forward to account for the facts known.

This book has grown out of lectures given to classes of adults organised by the Workers' Educational Association, and since the material and its treatment seemed to meet with their approval it was felt that a wider audience might

approve, too. That, at least, is the hope. The author is deeply indebted to members of those classes for examples cited in the text, and for their questions which showed the need for more explanations than might otherwise have been given.

It would be impossible to mention all the many sources of information that have been drawn upon in the compilation of this book. Several of the most important works used are mentioned in the bibliography at the end, a bibliography which has been kept short and which only lists those books which are cheap or easily obtainable. To any author, or worker, whose teaching has been misrepresented the author tenders his sincere apologies.

The author wishes to record his sincere thanks to Mary Clark, who read the manuscript in typescript and made many helpful suggestions, especially with regard to illustrative examples and literary style, and to Doreen Owen who had the unenviable task of typing the original manuscript, which was written in a handwriting more illegible than that of any doctor.

T. A. RYDER.

CHAPTER I

INTRODUCTORY—THIS THING PSYCHOLOGY

PSYCHOLOGY is popular to-day ; as a specialised study it is comparatively new ; it is regarded by some as a science—it is useful, but it is difficult, and there is much misunderstanding about it. But first, a definition, for it is just as well to be clear what one is considering, or reading about. Psychology is the science of the mind, at least, that is what it is supposed to be. Actually, most of what the psychologist studies may be termed behaviour, usually human behaviour. Now that term includes such experiences as seeing and hearing, talking and thinking, feeling and doing. We believe, rightly or wrongly, that what we term behaviour is the result of the workings of what we term mind.

Mind is non-material and, therefore, is not observable directly, so we must study the effects of mind and make deductions from what we observe. The same thing happens in physics—no one has ever seen an atom, all that can be done is to study certain phenomena and then say that they seem to be best explained by supposing that matter is made up of particles called atoms, i.e., we infer the existence of an entity, or entities, from observations of certain kinds. We suppose that when we see a person acting in a certain way, that those actions are the result of mental processes and feelings which may be similar to those that we have when we act in the same way.

Psychology is popular—partly because it is interesting, it deals with what we deem to be our most important asset, our mind, and since all have minds, we all think we know something about them. It is also popular because we feel—and rightly—that the more we know of how

minds work the better we can train and use our own minds, and prevent, or cure, mental ills. The popularity of the subject is shown by the number of journals—some not so good—devoted to it, and by the large number who attend classes in the subject, as well as by the use made of the word in ordinary conversation.

As a science psychology is new, and that may seem surprising, since, as mentioned above, it should help in promoting mental efficiency. There is a good deal of truth and value in the Greek adage, "Man, know thyself", yet we have learned far more about the physical universe than we have about the working of our own minds, the very instrument that we use in knowing the physical universe. We know far more about controlling Nature than we do about controlling our own minds, or even about understanding them. Of course, it does not mean that because psychology is new as a science, that nothing was known about human minds in the past—much knowledge there was, but it was empirical, unrelated, more concerned with the art of living rather than the science of it, e.g., the practice of Yogi in India.

There are good reasons for the late development of psychology as a science, reasons that are connected with the difficulty of the subject. What is mind? Is it an entity separable from and independent of the physiological processes? Are mind and brain separate entities? The answer to questions of that sort lie outside our present inquiry; philosophers and others have given differing answers. It was not until men realised that such questions could not be readily answered one way or another, and shifted their attention to the study of the effects of mind, that is, behaviour, rather than mind itself, that much progress was made, at least in the West. Then, obviously, there is the difficulty of observation. We can only observe minds other than our own indirectly, and a person's behaviour may not be a true indication of his mental processes. Behaviour can be simulated, it can be false. We do not always show our true feelings, there are such things as

"poker-faces"; a cynical Frenchman once said, too, that "language was given us to conceal our thoughts". That is why more can often be learned from children—who are more "natural", as we say—and animals. In the latter case, the brains of certain forms are rather similar to human brains and, presumably, their behaviour is motivated by mental processes and feelings somewhat similar to ours when we perform corresponding actions.

We are, of course, familiar with our own minds, directly; we experience our own thoughts, feelings, wishes, etc. But can we be sure that we really know our own minds? Apart from the fact that such psychological knowledge that we have shows that a person is unaware of much that happens in his own mind, apart from the fact that all of us have known occasions when we have been "surprised at ourselves"—as we say—there is the fact that, at any one moment, we are only conscious, or aware, of one or perhaps two ideas.

Then there is the further difficulty that arises from the fact that in psychology the object being studied is, at the same time, the subject that is doing the studying. This difficulty does not arise in the other sciences where the subject lies outside the student, that is, it is truly objective. Since, as we shall see, none of us really know ourselves, since our beliefs and actions are affected more than we realise by unconscious factors, by acquired biases and prejudices, it follows that we may be unwittingly deceived in studying our own minds.

The scientific method of approach to any subject is comparatively new—it only began with the Renaissance—that is, the method of observation and experiment, of tentative hypothesis and further observation and experiment, of not relying on authority without proof. This method was first applied in the physical sciences, in the seventeenth and eighteenth centuries—IT WAS USED IN THE BIOLOGICAL SCIENCES IN THE NINETEENTH CENTURY, and, again, with success. Only in recent years has it been applied to the study of the mental processes. So it is only within the

past forty or fifty years that the mind has been studied scientifically; only recently have methods of experiment and measurement been devised—before that, our knowledge of the human mind was empirical, theories about it were philosophic and not scientific, even now many views held are only opinions.

Of course, in a sense, we are all psychologists since we have some knowledge of how human beings think and act. It is, however, necessary to note the difference between *doing* something and *knowing* how that something is done. A person may speak grammatically without knowing anything about grammar, so a person may think, will, remember, and so on, without knowing anything about the mind that thinks, wills, remembers.

We may, at this stage, offer another definition of psychology, namely; it is the science of the activities of the individual. Now it is generally agreed that such activities may be divided into four types, namely:

- motor activities—walking, talking, doing;
- cognitive activities—acquiring knowledge;
- conative activities—willing and desiring;
- affective activities—emotions and feelings;

i.e. any manifestation of life may be termed an activity. It is necessary to point out that any mental activity is accompanied by bodily activity—the individual functions as a whole. Even in those activities that we term mental, brain, sense-organs and muscles play a part, a part that varies with the activity. There is, obviously, more muscular action in a motor activity than there is in a cognitive activity. As a matter of fact, some have suggested that all activity is purely physiological or material, that all human behaviour is the result of physico-chemical reactions to external stimuli applied to the body. But we feel that such an extreme view is wrong, although we know that mind and matter interact, that one affects the other. Examples are easy to come by—a stomach-ache (physiological disturbance) affects the power of concentration (mental activity); worry (mental activity) affects

digestion (physiological process) ; in fact worry is the main cause of duodenal ulcers and sex difficulties ; taking " one over the eight " affects the sensory apparatus, and so on.

The science that studies the way in which the bodily organs work is physiology which seeks to find out what occurs in the various organs. It deals with the organism piecemeal. Some may argue that, if we can study the functions of the parts, there is no need to study the organism as a whole, but, in reply, it may be urged that complete knowledge of all the component parts will not give complete knowledge of the whole—living organisms are not merely the sum of their parts. Individuals are units—all the parts of an individual work together—it is as a whole that an individual loves or hates, thinks and acts.

DIFFICULTIES OF EXPERIMENTING

The psychologist meets with difficulties in experimenting which other scientists do not. In the case of the physical sciences, for instance, the conditions to be controlled—and experiments are, in a sense, observations made under controlled conditions—are factors of the environment, such as temperature and pressure. In psychological experiments, there are, in addition to environmental factors, other factors internal and peculiar to the individual being tested. A simple example may help to clarify this—suppose one wishes to find out the effect of noise on the memorising power of a group of individuals. A number of persons may be given a list of words, or a poem to learn in a given time, under quiet conditions ; the test is then repeated under noisy conditions. Some of the subjects may show roughly similar results under the differing conditions. What then are we to conclude? That noise is not inimical to memorising? Not necessarily—the subjects in question may all be slightly deaf ; they may have had practice in learning under such conditions ; they may have been so interested in the matter to be learnt that the distractions were unnoticed ; that is, their internal

state affected the results obtained in the experiments.

An everyday example of the way in which internal conditions may affect one's reactions to stimuli, one's behaviour, is afforded by a person going to a doctor for an examination. Nervousness and emotional disturbance—internal states—may raise the blood pressure, the pulse rate and make the person "jumpy". A doctor knows that he has to make allowances for such unconscious effects. Temperament also plays a part—a person who is naturally bright and quick will easily become bored and lose interest in a test and so give a false result. Of course, a skilled investigator will make as many inquiries as he can before carrying out tests, but it is obviously impossible for him to elicit information about all the subject's internal conditions; even the subject himself does not know them.

DANGERS TO AVOID

One important point emerges from this all too brief consideration of the difficulties attendant on experiments in psychology, namely, we should avoid undue simplification and dogmatism. Human beings are individuals and, however much they may appear to be alike, they do differ in some respects one from the other. There are differences due to heredity, to environment, to prejudices and education, and so on. We know from our own experience how surprised we often are at the behaviour, under certain circumstances, of persons whom we thought we knew really well. It is not safe to predict in this matter of human behaviour for it depends on unknown factors, on internal conditions. The normally cheerful individual can be very morose if he has a touch of indigestion; the gloomy person may become quite animated after a few drinks.

There are few general principles that can be put forward, as in the physical sciences, that have no or few exceptions to them; in fact, it is not a bad thing to doubt any dogmatic statement in psychology; certainly, it is necessary to ask how many instances were observed before

the generalisation was formulated. Psychology is a young science and, therefore, we cannot expect it to have enunciated many such general principles; it still has a good deal of careful observation and experimenting to do. Unfortunately, there are many books whose writers are forgetful of this.

PSYCHOLOGICAL TERMS

There are difficulties that arise in connection with the language used in psychological literature, difficulties that are due, mainly, to the fact that the science is new. Many of the words which are used were coined long ago, words like thinking, willing, emotion, instinct, complex, repression, introspection, etc. But these words had been used—and still are in everyday use—in a rather vague and ill-defined way. Psychologists use these words with specific meanings, and confusion and misunderstanding may be occasioned when psychological literature is being read. A few examples may make the matter clearer—the usual meaning attached to the word “introspection” is brooding over one’s troubles, or worrying about oneself, but in psychology, the word means merely a form of observation, a “looking-in” and not a “looking-out”. You “introspect” your own pains, for example. Take the word “complex” so much used by some psychologists—especially amateur ones—in common parlance the word means “not simple”, in psychology, as we shall see later, the word has a very different connotation.

Unfortunately, there is a further complication in this matter of language. Some workers seem to have their own vocabulary and to use words with their own special meanings attached to them, for instance, Freud does not mean what is usually meant by the word when he uses the word “sex”. Chemistry and physics and other sciences coined new words for precision of statement—that was easy, and indicated, when new substances and new processes needed description. Psychology, on the other hand, when it became a science, found that most of the

entities and processes with which it is concerned were already named.

In psychology we are dealing with processes or activities, mental ones, therefore the terms that are used should really be verbs and adverbs. Only one noun is necessary, namely, the individual or organism which is the subject of the verbs. We use, unthinkingly, such terms as memory, thought, perception, etc., but we forget sometimes that there are no actual entities to which these words correspond. For the sake of precision, one should more correctly say that an individual thinks, perceives, remembers, wills, etc. By so doing we avoid belief in the existence of such "things" as thoughts, memory, imagination, etc. It is so easy—and not only in psychology—to imagine that just because there is a noun (even an abstract one) that there must be an actual existent objective something for which it stands. So, too, with words like intelligence or consciousness—these are really adverbs—it is the individual who acts consciously, or intelligently, or the reverse.

BEWARE OF GENERALISATIONS

As a result of its subject matter—human individuals—psychology cannot formulate general principles which have the same rigid and universal application as do those in the physical sciences. All the atoms of any element are all alike, all specimens of any given pure compound are all alike, but no two individuals are the same. Human beings are very similar in many respects but they are not identical—even identical twins who start off life exactly alike, cannot have exactly the same things happen to them at exactly the same time and in exactly the same way, all the time, so they, too, must ultimately become slightly different. It is important to remember this point, that individuals differ, otherwise we may apply, unthinkingly, a supposed general principle to a specific case, and be surprised at the result in practice. We can put this in another way and say that psychology is not a deductive

science, that is, we do not start with a number of self-evident truths, or general principles, and then proceed to draw conclusions about human behaviour which are always true. Such a method may work with figures or machines, but not with humans.

PLAN OF THE BOOK

The remainder of this book falls into three parts. Part I is mainly descriptive; the various aspects, activities and faculties of the mind are described—it is thus a summary of the results of observations and experiments, and is, in the main, entirely factual. Part II may be termed theoretical, for in it some account is given of the various theories that have been put forward to account for the behaviour described in Part I, and for the working of the mind in general. Part III deals with the applications and practical uses of psychology—or, at least, with some of them.

Immediately following this chapter, and before Part II, a chapter has been inserted which deals briefly with the present position of our knowledge of an interesting and much discussed problem, namely, the relation between mind and brain. This problem, in the wider sense of the relation between matter and mind, has long engaged the attention of philosophers, and, perhaps, it is really a problem for such thinkers rather than for scientists. But in our experience, we always find mind associated with matter, with that mass of matter which we call the brain—some mental processes associated with certain parts of the brain. This is not the place to enter into the question of whether mind can exist independently of brain, whether mind and matter are separate entities, and, if so, how one affects the other. Our task is merely to outline something of what is known of the functions of the brain. In recent years, that knowledge has grown considerably as a result of several causes—more operations are now conducted on the brain, more observations are made of those who suffer injuries to the brain (this was too common unfortunately

in times of war), or who have tumours on the brain, and by the development of highly sensitive electrical recording instruments. It has been discovered that electric currents of very low power flow through the brain fibres when it is active. It is now possible to measure these currents. It has been found that the patterns produced by them on suitable recording apparatus varies with, and depends upon, the mental activity in progress. It is thus possible to tell which parts of the brain are being stimulated and in action during various mental activities or experiences. The difficulty of measuring the electrical fluctuations in the brain can be realised when it is remembered that even when the brain is working "all out", it only generates $1/250000$ th of a volt.

CHAPTER II

MIND AND BRAIN

WHATEVER may be our opinion of the relation between matter and mind, there is, so far as our experience goes, a close connection between mind and that part of the body that we term the brain. We do not know mind apart from brain. Mental action depends on, or is related to brain changes. Things are perceived, for example, only when "electrical" impulses pass along appropriate nerve tracts to a certain part of the brain. This latter body may be regarded as an elaborate telephone exchange into which messages from the outside world and from the body are always coming. When these messages—sense impressions—are received, then mind comes into play and appropriate executive messages are passed back along other nerve tracts, and muscular actions may occur. But something more of this must be said under the heading of "Perception".

Since there is this close connection between mind and brain, it is obvious that something, however brief, must be said about the brain in any account that is given of the mind and its workings. It is only in recent times that much has been learned about the brain, and such knowledge as there is is, as yet, only fragmentary.

DESCRIPTION OF THE BRAIN

The brain is a large spherical mass of matter, an aggregate of millions of nerve cells, or neurones, each with long nerve fibres capable of conducting electrical impulses, and linked together in a complicated arrangement. The whole mass is covered and protected by a set of bony plates which are fused together in the adult human being into the skull. Between the skull and the brain proper, there

are three layers, membranes or meninges, which act as extra protective agents to the delicate neurones. An added protection is the cerebro-spinal fluid, a clear watery fluid which is found between the middle and the inmost of the three meninges. This helps in absorbing shocks when the skull is knocked.

The human brain is divided into two oval masses—the cerebral hemispheres—which lie alongside each other and are connected by numerous nerve fibres. The hemispheres are linked by a stalk-like mass of nerve cells and fibres—the brain-stem—with the spinal column. It is along this stem that incoming messages pass from the sense organs and outgoing executive messages are sent to produce muscular movements. The surface of the cerebral hemispheres is highly corrugated and covered with a thin layer of grey matter—the cortex—these corrugations and convolutions are so great that the area of the cortex is very large compared with the size of the brain. In fact, if the human cortex were spread out as a flat sheet it would cover the best part of a tennis court. As we shall see, this great development of the cortex, which is characteristic of man, is important because of the functions which it performs. All the higher animals have convoluted brains but in man the complexity is much greater. To take but one example, the area of the cortex of the frontal lobes in man is eight times that of the cat, even after making allowances for the differences in brain sizes. The cortex consists of neurones and nerve fibres linking all parts to one another so that association of the parts is possible. The cortex is also linked with the central nervous system.

The main mass of the brain appears to consist of soft white matter. This is made up of nerve fibres which are isolated from one another by insulating sheaths of fatty material—it is this which gives the white appearance to the mass. These nerve fibres are grouped in bundles and they pass down the spinal cord and so to the various parts of the body. These fibres are microscopic in size and cannot be dissected in the ordinary way with a scalpel and

forceps. It is, however, possible to study some of these fibres because when injured they undergo changes which make them absorb certain stains in a differential manner. Near the base of the brain there are some solid masses of grey matter lying in the white mass. The most important of these is the thalamus, or mid-brain, which lies in a central position deep within and between the cerebral hemispheres. This body seems to be a "sorting-out station", for it is connected by nerve fibres with the whole of the cortex and the spinal cord and through it all messages pass. It has been found that a slight injury to it produces marked effects on the understanding, whereas many areas of the cortex can be removed altogether with little effect being produced on the mind of the individual concerned. The thalamus apparently relays signals received from the sense-organs to the appropriate receiving areas of the cortex, for the cortex has areas set apart for different functions.

FUNCTIONS OF THE BRAIN

Until recently, very little was known about the functions of the various parts of the brain although there were those "quacks", the phrenologists, who claimed that the "bumps" on the head were a guide to mental capabilities. The fact that the brain proper is covered by a hard unyielding bony cap should be sufficient answer to those who hold such views. It would be most unlikely that any development of the brain due to special training (even if such occurred) would alter the skull shape. Barring accidents to the skull from external causes, there is little change in skull shape in the adult human. Such "bumps" as may be felt on some heads are as like as not due to external injuries and not to inner change or condition. Even the extra tissue growth which occurs with tumours on the brain does not affect the outer shape of the skull. The factor that determines brain, or mental, power is not quantity but quality of brain tissue, not increase in matter but difference in structure.

It is now known that in the case of the cortex there are a number of different areas each of which has different functions and each of which has a characteristic structure. One area for example, is concerned with vision. When images impinge upon the retina of the eye, signals or nerve-impulses are passed back along the optic nerve to the thalamus which then relays the message to the vision area of the cortex. This is situated at the back of the brain, and only when those messages reach that area do we have the sensation of seeing. The cortex areas for hearing are situated one on each side of the brain just above the ears; the general cutaneous sensory areas for receiving impressions from the legs, arms, etc., are in a groove on top of the brain, about midway back.

It seems that specific memories are "stored" around the appropriate cortex area, for example, visual memories are "stored" near the visual receiving area. But general memory seems to be a function of the whole cortex. That is what might be expected in view of the fact that all parts of the cortex are associated and linked and general memories consist of impressions and sensations derived through several senses, together with thinking about them. Learning and remembering are functions of the whole cortex. The large sheet of cortex that covers the frontal lobes of the brain—highly developed in man, hence his well-developed forehead—seems to be connected with thinking ahead, with planned activity, with future action. This is evidenced by the effects produced on those unlucky persons who have undergone the operation known as leucotomy. This operation is sometimes carried out on those who suffer from extreme anxiety symptoms and it consists in severing the nerve-connections between the frontal lobes and the remainder of the brain. It is found that the operation does not affect the memory of those who undergo it, nor does it make any difference to their sensory centres or motor-controls, but it does result in the individuals concerned, losing all capacity for planned initiative, and, of course, that loss is permanent.

The emotions are apparently seated in that part of the brain known as the medulla oblongata, which is the bottom part of the brain linking the upper part with the spinal cord. Control of the emotions is a function of the cerebrum, or fore-brain, that part of the brain which occupies the upper front of the head cavity. This is shown by the fact that when patients have their cerebrum temporarily put out of action as by anæsthesia they may lose control of their emotions, and sing, or fly into a rage, or use language which in their normal waking moments they would be ashamed of.

Thought is a function of the cortex only. This is what we might expect, since man is the thinking animal and in man the cortex is so highly developed. This also helps to explain why it is that intelligence depends, not on the actual size of the brain, but on the degree of complication of the convoluted foldings of the brain surface, and so of the area of the cortex. A large brain with little surface folding would not have so great an area of cortical coverings as would a smaller brain with a highly elaborate convoluted surface. All the higher animals have convoluted brains, but in man that feature is most marked and most elaborated.

BRAIN SIZE AND INTELLIGENCE

Size of head is not necessarily any guide to intelligence, in fact, some idiots have abnormally large heads. Large heads may be the result of thick skulls rather than large brains. Tests of intelligence on individuals whose brain size has been calculated from head size show that individual differences in intelligence have no direct relationship to brain size. It seems rather that the features of the brain that determine intelligence are those of fineness of internal brain structure and the chemistry of the brain tissue. Quality counts, not quantity as such. Although, it must be noted, that a genius may have a brain which is slightly smaller than the average, and no examination under the

microscope of the brain tissue will show any difference from that of a normal individual. It seems that a genius may be only a person who has the "knack" of using an ordinary human brain rather more efficiently than most of us do.

The weight of the average male brain is $49\frac{1}{2}$ ounces, that of the average female brain is $44\frac{1}{2}$ ounces, but surely no one would dare to suggest that the average male is more intelligent than the average female! The brain of the largest ape—the gorilla—weighs but 20—25 ounces, and the animal may weigh up to 600 lbs. In fact, the high ratio of brain-weight to body-weight is one of the characteristic features of human beings. In this connection it is interesting to note that there has been little change in human brain size during the past quarter of a million years at least. The skull of the earliest known man in Britain, Piltdown Man (about a million years old), shows a brain size of about 1,300 c.cs., which is roughly the same as that of the Australian aboriginal to-day, and very little smaller than that of some modern Europeans (the average size of the modern European brain is 1,480 c.cs.). The convolutions of Piltdown Man's brain were much simpler, however. Neanderthal man, who lived some fifty thousand years ago in Europe, had a brain size of 1,600 c.cs., but probably his brain, although larger than the modern man's, was of poorer quality.

PART I—DESCRIPTIVE

CHAPTER III

THE RECEPTIVE MIND

Section A. *Perception—collecting the material.*

ALTHOUGH we should never lose sight of the fact that the mind of an individual is a unit and acts as a whole, it is nevertheless, convenient for purpose of description and study, to regard the mind from different points of view and to isolate certain aspects of its workings. We have earlier noted that psychology may be defined as the science of the activities of the individual (using the word activity in a broad sense), and these include:

motor activities—doing something, e.g., talking, walking, etc. ;

cognitive activities—obtaining information, e.g. seeing, hearing ;

conative activities—willing and desiring ;

affective activities—emotions and feelings.

The last three groups are especially concerned with those activities that we term mental and some element of each group is present in all mental activity.

Body and mind, muscles and brain are all active in varying degrees in all human activity, the relative proportion of each depending on what is being done. There is, for example, little motor, or affective element present in the solving of a quadratic equation or a crossword puzzle, although the cognitive element is dominant. Precisely the reverse happens in dancing, where the cognitive factor is almost absent but the motor and affective factors are dominant. The point to notice, however, is that all the elements, or aspects, of mind are present in all human behaviour—the whole mind is in action, it is functioning as a unit.

We may, for our purpose, regard the mind under two main aspects, viz.,

1. The passive or receptive mind, that is, the mind regarded as a storehouse of facts, a thinking instrument.
2. The mind as an active agent, initiating and sustaining bodily activity.

In this chapter we shall be concerned with No. 1 above, that is, with the mind as a perceiving, remembering and thinking agent. It is obvious that if the mind is a thinking instrument, then like all instruments or machines, it must have raw material with which to deal. That material is the information, or knowledge, gained by and through the senses. These latter are the agencies or means whereby a mind contacts, and becomes acquainted with, the world external to itself, by which the mind learns what is going on in and outside the body. Any study of mental processes must, therefore, include some discussion, however cursory, of the sensory apparatus and the way in which it works. The detailed structure of that apparatus is a matter for physiologists and anatomists and not for psychologists.

HOW THE SENSES WORK

Our sense-organs may be regarded, to use an analogy, as radio-receiving sets, sets which are capable of receiving certain stimuli and sets which are always "tuned-in" to a great number of influences. Numerous stimuli—electromagnetic vibrations of certain wave-lengths, e.g., those that we call light and heat waves, or vibrations in the air such as sound-waves, are examples—affect our sense-receptors—our eyes and ears. All the time that we are conscious (aware) we receive what are termed sensations and these, in turn, produce mental impressions. When, let us say, the retina of the eye (the light-sensitive part) is stimulated by light-rays falling on it, then nerve impulses, electrical in character, pass from the retina to the appropriate cortical area and we have the sensation of

"seeing"; we have an impression of an object or scene external to ourselves. Similarly with the other sense-receptors.

As a matter of actual fact, we are not always consciously aware of all the stimuli that are "picked-up" by our sense-organs. We select from the many we receive, i.e., we only actually attend to a few of them at any one time, but we can and do switch our attention from one group to another. Attention is rather like a moving searchlight picking out and lighting up first this and then that. As you read these words, for instance, I hope that your conscious attention is directed to the black marks on the white sheet in front of you. Yet all the time other stimuli are being "picked-up" by your sense-receptors, other stimuli to which you are not attending until your attention is drawn to them—a passing car, an aeroplane overhead, the crackle of the fire, children playing, the radio next door, and so on.

Let us look for a moment at the mechanism of this sensory process. Take an actual illustration; consider, for example, the mental impression we get when we examine some object, say this book. The impressions, or perceptions, that we have depend, as we have seen, on the fact that various sense-organs of our body are activated; they are stimulated. The various sense-organs of the body are linked by nerve-fibres—arranged in groups—with the brain (the actual receiving organ). When any sense-organs, or receptors, are stimulated into activity, nervous impulses pass along these fibres. So, when holding this book, tiny sense-organs in the skin of the hand become activated—some of these sense-organs are sensitive to touch, some to pressure-differences, some to temperature changes. These organs then transmit signals to the brain and the various signals become co-ordinated there, with those coming in from the eye, and the result is the perceiving of the book. As we have already seen, in the previous chapter, the signals or impulses from the sense-organs do not travel directly to the appropriate cortical area (and

until they reach that no conscious sensation is possible); they are relayed there, through the spinal cord and thalamus.

It is now necessary to insist on a linguistic point. Strictly speaking, sensation is the receiving of the external stimulus—the coldness and hardness, or what you will—whereas the experiencing of the sensation is the perception. We are only aware of the fact that we have received a sensation when we have a perception. Now it may seem that when we have perceptions, we have what may be termed a mental impression or photograph of the object that is being perceived. But the matter is not quite as simple as that. The percept—the product of perceiving—is not experienced by a mind that is completely blank, on the contrary, it is experienced by a mind that is already well stored with memories. So our mental impression of any object is affected by what is already in the perceiving mind.

No one can have a pure or simple percept. What we pay attention to is not just a passive experience of an external stimulus, or stimuli; but something to which the mind has made *additions*. The mind is not just a passive receiver of sensations or impressions. It is an active agent, and the percept is added to, and coloured by what is already in the mind. Our past experience of the object being perceived, and our attitude in relation to it, make a difference to our percept of it. This is well illustrated in the case of perceiving something with which we are already familiar as against our perceiving something we have not experienced before. The visual sensation of the following would be the same for a literate and an illiterate person.

EXIT

viz. black markings on a white ground, but the mental impression would be different and would lead, under certain circumstances to different courses of action. The dif-

ferences arise because in one case the sensations reach a mind which does not have previous knowledge of letters, whereas in the case of a literate person, the mind has such knowledge. The same thing occurs with spelling mistakes and proof-reading. Our interests also make a difference to our percepts. One man may look at a scene and have a completely different percept from that which another has—e.g. an architect's percept of a building will be different from that of a child's, yet both, have the same sensations, the sense-organs of both react to the same stimuli.

This fact, namely, that different people have different percepts of the same scene, has practical consequences, e.g., in describing an accident, etc.

To our sense-impressions we add something, small though it be, from previous experience. Take the case of distance. J. S. Mill wrote "we may fancy we see or hear what in reality we only infer. For instance, there is nothing of which we feel more definitely conscious than the fact of the *distance* of an object from us yet what is perceived by the eye is nothing more than an object of a certain size and a certain shade of colour". We estimate that the object is at a certain distance from us by inference, by making a rapid comparison—so rapid that we are unconscious of it—between the shape and size of the object and of other objects seen at the same time, or of similar objects seen previously.

Other examples might be given—the point to note is that our mental impressions consist of sensations plus something else and that something is some degree of interpretation or recognition and, obviously, that will depend upon our previous experience and memory.

It should be clear that this matter of receiving mental impressions is important. Consider the individual's reactions to his environment. He receives stimuli as signals from his environment, through his senses and by means of his muscles, he acts on the environment.

Successful living, in fact, survival, may depend on the reaction to the signals received or rather, to the object

which give rise to the stimuli. Let us imagine that you meet a lion walking down the street towards you, now the stimuli which you receive are just certain colours, maybe certain sounds and smells, but your reaction is to the object as a whole—the sensations received meant nothing in themselves, it is the something your mind adds to these sensations that result in your doing something. And you react to the object as an object in a given situation, for your reactions would be very different if you received precisely the same signals from the lion if it were behind the bars of a cage in a Zoo, or if you had never seen or heard of a lion before.

We cannot deal effectively with our environment unless we know that environment, which means not only knowing the stimuli that come from the environment but also the objects that cause the stimuli, for our behaviour has to conform to the objects and not to the stimuli, although the latter can be isolated by deliberately attending to them. The stimuli are signs, or signals, from the surrounding world, whilst the objects that we observe are the meanings of those signs, or to be more accurate, they are the meanings that we attach to them, for it is possible to make mistakes in our inferences. This possibility of making mistakes in interpreting signals accounts for the occasional and momentary illusions that we have. A half-caught glimpse of a shadow may, momentarily, give the impression of a person; the fall of a coal in a fire may give a nervous person the impression that an intruder is in the next room.

SELECTING FROM THE SIGNALS

We select for conscious attention some out of the many stimuli that affect our sense-organs. The number of stimuli we select, and hence, the number of objects we are aware of, may vary according to circumstances. What are the factors that determine which stimuli we select for attention? They may be features in the environment or in ourselves—in our minds.

We all know that bright lights, loud noises, strong

smells, etc., will attract our attention, even if only momentarily. That is why advertisers make use of such things, why heralds blow trumpets, policemen blow whistles, motorists use horns and so on. Other things being equal a strong or intense stimulus will attract attention rather than a weak one. Yet it is possible—as those of us know who may have to work under trying conditions—that the mind can become inured to such attention—attracting—or rather distracting—factors in the environment. In any case the attention is not sustained—if the flashing sign continues it may cease to attract attention.

Two other characteristics of external stimuli also attract attention, namely, repetition and change. One may not hear a single cry, but if it is repeated several times then it will attract attention. One pip for a time-signal could easily be missed, so the B.B.C. use six; striking clocks often have their striking preceded by chimes for the same reason. If a stimulus is over repeated then it may fail in its purpose of attracting attention, because it becomes monotonous. A steady light or noise may not attract attention but any change in them will do. We may not be consciously aware of the clock ticking in a room because we have become so familiarised with it, but if the clock stops then we may notice something different—that is, an everyday example of change attracting attention.

It is those factors that lie within the mind that are the most important and most lasting. Chief of these is interest. We select from the totality of sense-experience those signals which are concerned with something that interests us. That is why different people see different aspects of the same scene; they vary in their interests. For instance, in the case of the accident mentioned above, the interests of the parties concerned are obviously different. One is naturally interested in what affects one's pleasure or profit, that is, what benefits oneself. This is what might be expected, and we shall see later, this self-interest, or ego-instinct, is regarded by many as the mainspring of all human behaviour, both mental and physical.

Sometimes one has to pay attention to matters in which one is not interested. This demands effort. We may have to attend to matters and objects in the course of our work which do not really interest us, or have to study subjects we deem uninteresting. This work can be done by deliberate effort, by an act of will making us concentrate (forced attention) on the matter in question. An easier way is to try to find some link between the originally uninteresting subject and one in which we are already interested. Such can be done sometimes easily, sometimes not so easily. It may help in the case of learning an uninteresting subject for an examination to reflect that passing the examination will improve one's prospects and so the ego-instinct is brought into play and the effort of learning is then not so great as it would otherwise have been.

Other factors include habits of attention which have been formed by training, e.g., a car-driver (especially an owner-driver) acquires the almost subconscious habit of listening to the various noises (including engine noises) of his car and will notice a slight change, or a new squeak or rattle which his passenger may fail to notice.

Occupational training affords numerous examples—a geologist for instance, will notice fossils in a quarry far more quickly than a non-geologist. Our emotional state makes a difference too. We all know from experience how easily we notice the bad points of a person with whom we are angry or annoyed, or the good points when we are feeling kindly disposed towards him.

There is another internal factor which helps in developing attention, one that is, in a sense, an interest factor. It is the activity in progress, in other words the interest of the moment. I know from experience when I am preparing a lecture I easily spot data which may be appropriate even in the most unlikely places. An idea in the mind seems to act almost as a "magnet" for related ideas and related material. Rather similar to this is the common experience exemplified in the following—one

comes across a new word in reading—it may be the name of a place, or a person, a book, or what you will—and then, oddly enough, one seems to be frequently seeing the same word although before one had not noticed it.

Although we may be attending to a few only of the stimuli coming from the environment at any one time, there are always other stimuli competing for our attention and if they catch it (by becoming more intense, for instance) then we are distracted. A good deal of experimental work has been done on the subject and the results indicate that internal factors have more effect than external ones in distracting one's attention—internal factors such as anger, fear, boredom, fatigue, etc.

At the risk of boring the reader, let it be re-stated the principal factor in arousing—and certainly in retaining—attention is interest.

Teachers often complain of their pupils not paying attention to their work. The real position is of course, not that the child is not attending but that it is attending to the wrong thing at the wrong time; it is attending to something other than the lesson. Why? Because it has lost interest. Especially will this happen in those subjects which seem to have no connection with its interests. It is noticeable that there is little inattention when a story is being read; the reader or listener is eager to find out how the story works out—a question has been posed, a problem has to be solved, so attention is maintained. The same sort of thing can happen in the case of non-fiction reading especially if the reader sees the question at issue and reads on to find the answer. Children, too, like to see the point at issue—they are, in fact, more practical minded than many adults—it pays to let them know what one is driving at.

Section B. *Remembering.*

We all know that at any given moment we are aware of but one, or perhaps two ideas, but that other ideas come and go across "the stream of consciousness" in successive

moments. We can recall experiences that we had in the past; we can remember, as we say. Memory may be defined as the power, or ability to bring past experiences to consciousness. It seems, to use an analogy, that we have a "store" of memories from which we can draw at will. Mind is a sort of store-room, or card-index system, and those two analogies correspond to two different types of minds, for there are those who experience difficulty in recalling certain, or many, past experiences when they wish to do so (those with muddled minds, rather like a "junk"-room), whilst there are others who seem to recall just what they want when they want it (the card-index or tidy mind type).

Persons vary in their memory type; some are good at remembering visual scenes—the sort who "never forget a face"—others remember sounds better. Every normal individual has a good memory, for such is part of the natural endowment of mind. Some have a remarkable flair for remembering certain things, cricket records, Derby winners, quotations, figures, dates, etc. As we shall see later, that fact gives a clue to the problem of how to improve one's ability to remember.

It must be obvious that the ability to remember is all important. No civilised life, in fact, no life other than that of the most primitive organisms, would be possible without that ability. There are many actions that we perform almost automatically, they have become habitual, but, in the first place, we had to learn how to do them, and that learning involved remembering.

It is worth remembering—as stated in Chapter I—that many of the abstract nouns used in psychology are really verbs. It is incorrect, strictly speaking, to say that someone has a memory, what we should say, if we wish to be accurate, is that someone has the ability to remember, the power of remembering.

There is another point that may be mentioned before we pass to a consideration of remembering. What is the difference between thinking and remembering? Both pro-

cesses make use of past experience. In remembering we are provided with ready-made answers to our problems (we can only remember the answer to some problem that we have already had to face), answers that are derived from past experience. In thinking (solving problems that we have not had to face before, maybe) "we put two and two together" and so build up gradually an answer to the problem under consideration. Memory is thus a direct use of what has already been learned; thinking is an indirect use of what has been learned, involving reasoning as well as memory.

For purposes of discussion, it is possible to divide up the remembering process into three stages, or phases, namely, learning or receiving the impression(s), retaining the impression(s), and recalling the impression(s) at some later time. If you prefer to use nouns—always remembering their dangers—then the three stages may be termed Impression or Learning, Retention and Recollection. As a matter of fact, we often use the word "memory" when we only mean "recollection".

RECEIVING THE IMPRESSION(S)—LEARNING

We are, when conscious, continually receiving impressions from the outside world and from our own bodies—in that sense, we are always learning but unintentionally. What is meant here is intentional learning, the picking out of certain only of the many impressions that we receive with a view to remembering them for later use and recall. But in addition to the impressions that come from the outside world through the media of our senses, there are other mental impressions that we have which arise within the mind itself, but which can be memorised like those derived through the sensory apparatus. These mental impressions arising within the mind come through the use of imagination and thought, and they may correspond to no actual experience or thing; they may have been formed in the mind by taking parts of one object and mentally adding it to parts of another, but we can remember the result.

Intentional learning or memorising can be done in various ways. It can be done by:

a. Repetition of the matter to be learned. This is an age-old method, and, incidentally, is still one of the best ways to learn such things as multiplication tables, despite what the modernists say. One of the simplest experiments in memory consists in giving lists of numbers to the subjects and discovering how long a list can be repeated after one reading. Here are a few specimens:—

518,
3287,
708964,
56498136,

It will be found that different persons vary in the number of figures that they can repeat after this one reading. The range, which is termed "the immediate memory span", can be increased with practice. A similar experiment can be performed with playing cards, and this, incidentally, is good training for those who play card games. If a list of numbers longer than the immediate memory span is given to the subject then one way of learning the list is by repetition, and, again, persons vary as to the number of repetitions that are necessary.

Slogans and advertisements illustrate how repetition can aid memory. One knows from experience that constantly seeing the same phrase imprints it on the memory, even though no conscious and deliberate effort is made to learn it. But mere repetition is not the whole story. One looks for patterns and groups, for rhythm; that is why poetry (the old rhymed sort) is so much easier to learn than prose.

Those who, in the course of their work, have to repeat the same passages time after time, as for example, clergymen taking liturgical services, find that they have learned lengthy passages just through the constant reiteration.

b. Use of Rhyme. As mentioned above, it is easier to learn rhymed material than unrhymed. It may, therefore, pay to make up doggerel verse in order to facilitate learning. Take an example—the following events and dates,

A.D. 43 Roman invasion of Britain; A.D. 52 Caractacus taken captive to Rome; A.D. 61 Queen Boadicea committed suicide. Such a list will probably take several readings in order to learn it, but now rewrite it in rhyme, thus:—

Forty-three a Roman host
Did sail our southern coast,
Caractacus in nine years more,
A captive left his native shore,
Boadicea from loss and strife,
In sixty-one destroyed her life.

Probably one, or at most two, readings will now suffice for learning it, and the rhymed version contains a few more facts, too.

c. Concatenation. This word simply means making a chain, putting words or ideas together that are naturally associated. Take these ten words—white, test, milk, red, snow, green, cow, match, grass, flame. Can you, by reading this list once or even twice, remember all ten? No, well then rewrite the same ten words in a different order, namely: test, match, flame, red, green, grass, cow, milk, white, snow—now one reading will suffice for learning all ten words. Now why should this be? Because we tend to associate things in the mind that are associated in nature—grass and green, milk and white—that are associated when we experience them. You will recall that all the parts of the cortex are associated and linked by nerve fibres, that sensations that reach the brain together, or at the same time, must, in some way, be linked or associated as they pass through the central relay-station of the thalamus. So, when one of the sensations is remembered, e.g., that of green, then the concept grass also comes into consciousness, because the two things were experienced together.

This phenomenon of association in time, as an aid to memorising, is made use of in this common event. Someone comes into the room where you are, obviously meaning to say something, and then he finds that he has forgotten what it was, so you say, "Well, go back to where

you first thought of it and you'll probably remember what it was". More often than not, he does. And he does it because of the association of the place with the idea—it was thought of in certain surroundings, and when back in those surroundings, the idea reasserts itself in his consciousness. The habit of tying a knot in one's handkerchief also illustrates this association point.

This method of linkage can be used to connect two words or ideas that have to be remembered together but which have no apparent connection. For example, suppose that the name of the secretary of a club that you are interested in is "White", then make up this chain:—

secretary—pen—ink—black—White.

A few repetitions, and after a while, the intermediate links will drop out and the office of secretary will immediately suggest the man's name.

Deliberate learning, or memorising, is thus a form of mental work that can be managed. Several principles have been formulated that enable us to learn even long and difficult passages more easily. These principles, and the fact that their application works, give a clue, as we shall see, to the nature of memory and the manner in which we remember. A good deal of experimental work has been done on this matter of memorising. It is from these experiments, conducted on groups of various ages, occupations, ages and intelligence, that the principles mentioned have been deduced.

PRINCIPLES OF LEARNING

One of the first and most important principles is that of observant study of the material to be learned. It is found that those who look for associations, who try to link up the new material with what is already known, learn more rapidly. Such organisation and associating is a better way of memorising than repetition. Such a method may not lead to word-for-word memorising, but it is more likely to lead to learning the meaning and general sense of the material in question. As in the case of unintentional learn-

ing—as in receiving sensations willy-nilly—so in that of intentional learning, the impressions received do not enter a mind that is blank, but one that is already well stored, and since the store varies with individuals, the linking and associating that is done will vary too.

A second fact that has emerged from experiments is connected with the repetition method of memorising—it is this, namely, that the value of repetition is much increased if recitation is combined with it. If, after reading through the material to be learned several times, the learner then covers up the material and tries to recite it aloud, he will find that he can learn in a shorter time than by just re-reading to himself. Tests showed, in one case, that in two groups of people who both spent the same time memorising a number of nonsense syllables, that in the group that spent the whole of the time in just reading, only 35 per cent knew the sixteen syllables at the end of the time allotted, whereas of the other group, the members of which had spent one-fifth of their time reading and four-fifths reciting, 74 per cent had learned the sixteen syllables. Not that all similar experiments show such marked differences; they do not, but they do show a difference. There are some advantages to be gained by recitation. For one thing, the combination of reading and recitation is more stimulating than mere reading; for another, the recitation shows the learner what he knows and does not know—it makes him more observant—and more than one sense is involved.

A third principle may be termed that of “spaced learning”. Much experimental work has been carried out to try to answer the question as to whether it is better to try to learn the given material “at one go”, or to do so with intervals of rest. It has been found that, in the case of long passages of prose, for example, it is better to read the matter through several times, and then leave it for a while, and have another period of learning and another rest, and so on. That is the reason for the case cited above of clergymen and others who repeat the same

passages regularly, learn those passages without necessarily meaning to do so. Spaced study seems to fix the material learned more deeply in the mind. Every student knows that a period of cramming immediately before an examination may fix the material in the mind for a time sufficiently long for it to be reproduced in the examination, but that material learned in that way does not "stick".

It should be noted that, although spaced learning is advantageous and gives the best results in memorising, that does not imply that study should be in brief periods with long intervals of rest between those periods. Probably fairly long study periods will prove best. The point is that repetition of the *same* material leads to better retention if there are intervals between the repetitions. There is a possible explanation of this which will be mentioned later.

Still another principle is that of whole-learning. Tests have shown that—contrary maybe to expectation—less time is required to learn a long passage, or poem, if the whole is tackled at once than if one tries to learn a few sentences at a time, or a verse or two. In one experiment, one group of students was given a long poem to learn. Their method was to read the whole poem right through three times a day until it was learned—that took 348 minutes spread over ten days. Another group was given the same poem, but their method was to learn thirty lines each day until the whole was learned. They took twelve days and they had spent 431 minutes at the task. The whole-learning method thus saved 20 per cent of the time. Again, it must be noted, that not every experiment shows such conclusive evidence in favour of whole learning. Now the fact that these experiments are not uniform in their results seems to suggest circumstances play a part in memorising. It is, therefore, necessary to try to find what these factors of advantage, as they are termed, are.

There appear to be several factors that are conducive to learning. First and most important, is the factor of interest. We all know that we learn easily about those

things in which we are interested, in fact, so easily that we have to make no effort. That is the reason why some people, as stated earlier, have such good memories for certain things, just because they are interested in those particular things. We all know how we remember the pleasant things of life and tend to forget the unpleasant ones. In fact, most cases of forgetfulness are due to the fact that what we cannot recall has painful associations. If one is interested then one can concentrate on a subject for a long period without much effort. When one is not particularly interested in the material to be learned then it may be better to use the spaced method.

A second factor conducive to memorising is that of confidence. It is bad to have doubts about one's ability to learn. The person who is always saying that his memory is bad will find that it will become bad. It does help to believe that one has a good memory for that is one way to have one.

Then there is what is termed the factor of "growth through activity". We know that in physical culture it is better to have periods of muscular activity interspersed with periods of rest and relaxation, rather than very long periods of continuous activity. No athlete worthy of the name would "cram" for an athletic contest. Mental work is somewhat analogous. Spaced learning gives more durable results than unspaced. When one finds oneself losing interest, when it is difficult to concentrate on the matter in hand, it is better to have a rest than to force oneself to continue. After a rest one will come back to the task refreshed and, in the long run, more will have been learned in shorter working time. School time-tables are framed to allow short periods of relaxation, for this reason.

The factor of competition is another that helps in memorising, especially with children. It is not uncommon to find that a child will tackle a task almost eagerly if it is competing with another. This competition factor is connected with the self-instinct; it is a means by which the

individual may be able to show that he is better than another.

So far we have been discussing intentional learning, that is learning with the "will to learn" aroused. It seems that we only memorise well when we deliberately set out to do so. This is well illustrated in the evidence given by persons who did not know at the time they witnessed a scene—an accident, for example—that they might later have to describe it. It is noteworthy how poor and often contradictory such testimony may be.

There is, however, this point to note here. We see a scene, we witness an event, and we pick out or select certain aspects only, certain objects and actions, not with the intention, necessarily, of remembering them for a later recital, but just because they interested us at the time. And since people differ in their interests, different persons will select differently. If, later, we are questioned about the event or scene, then we find it fairly easy to recall those particular aspects of it that interested us.

RETAINING THE IMPRESSIONS—RETENTION

After learning facts it is necessary to retain them for future use. Whatever retaining may be it is something other than mere repetition of what has been learned, for we do not have to be always repeating the learned material in order to be able to keep it in memory. We retain the learned material despite the fact that for a good part of our time we are unconscious, as in sleep. Retaining is a passive process, whereas learning is an active one. It seems that retaining must be connected with some change analogous to structural change. It may be that the act of learning brings about some modification of the brain structure. This altered structure is termed a "memory-trace". It is obviously impossible to observe any such structural change directly, so we can have no exact knowledge of its nature, but it may well be that every act of learning effects some change, however slight, in the brain structure, which persists for a period.

There is some disagreement amongst psychologists as to whether a memory-trace is ever obliterated completely. Some say that everything that we have experienced, certainly everything that we have ever learned, is retained; others take the view that memories may gradually disappear. Those who hold the former view adduce such evidence as the occasional recovery of memories, as for example, those of early childhood, which were considered gone for ever. Some of you may have had an experience something like this—you hear someone quote a line of poetry, and you suddenly and unexpectedly find yourself continuing with the poem from which it comes. Then you recall that you once learned the poem years before and had forgotten all about it until the line quoted acted as a trigger. The line quoted acted, to use an analogy, rather like a gramophone needle dropped on to a record, the tune went on playing just where the needle fell.

Another analogy may be used in connection with retention. You know that if you walk across a grass field once, or even twice, there will be little impression made on the grass (compare that with the impression left on the mind by one casual reading of a passage), but if you continue to walk across the grass in precisely the same track day after day, then gradually you form a clearly defined path, a difference in structure—for there is bare earth where there was grass—which can be seen and easily followed (compare regular repetition of material). If you stop travelling the path for some time, then the grass will gradually spread over it, it will become less marked, but if you resume your walks then it will soon show plainly and become more or less permanent (compare repetition at intervals of once learned material). If a memory-trace, or "rut", becomes deeply made or marked, then recall may be done at such a speed that it is clear that it is not done by thinking about the material, but by letting the record—to change the metaphor—go on playing.

A personal illustration may not be inapposite. When I was at school I learned Tennyson's *Ode on the Death of*

the Duke of Wellington, a rather long poem. Since then I have frequently revised and recited that poem with the result that, to-day I can repeat it at the fastest speed that my voice can manage—and that's fairly fast—and do something else at the same time. Recall has become almost automatic, once the "record" starts to play.

Our evidence for retention, is the fact that what has been learned can be repeated later. We can recall the material learned or we can recognise statements taken from the material that has been learned. There is a third method by which it can be shown that retention occurs, namely, the method of re-learning. Imagine that you learned a poem so many years ago that you have forgotten that you learned it, then it has been found that if you set out to learn the poem again you would do it much more easily and quickly. A student who had learned typing for two hundred hours did no typing for a year, but it was found that after one hour's practice he had regained all the lost ground.

Experimental work on retention has shown that there is a gradual loss of retention with the lapse of time but that the rate of forgetting is not constant; there is a fairly rapid falling off in retention during the time immediately after learning, but then the rate of forgetting falls off increasingly slowly. The rate of forgetting varies with different individuals and depends on various factors. One factor already mentioned is whether the material is pleasing to the individual or not. A lesson that has been over-learned—that is, past the point necessary for more or less immediate recitation—is forgotten more slowly than one that has been barely learned. This may be because the memory trace has become better marked in the former case (compare the well-used path). Material that has a meaning is retained longer than that which is nonsensical, for example, nonsense syllables that have been barely learned may be forgotten in a few months, whereas a poem, although only barely learned, may be recalled fairly easily after the lapse of several years.

FORGETTING

Forgetting is not due to lapse of time but to what happens in time. It would seem that something takes place in time that weakens or obliterates the memory trace.

We know that our muscles lose strength when they are not used, that complete disuse would lead to atrophy. It may well be that the matter of the brain acts in a similar way, so that the slight structural changes that occur in the brain tissue as a result of learning, suffer. This idea is borne out by the fact that constant use and training of the memory improves the memory, and that the repetition of material learned prevents forgetting of that material.

When we are awake (conscious), we are doing something different almost from moment to moment, we are constantly changing our activities. Now it should be clear that if every separate act that we performed were controlled by its own particular centre in the brain, then no interference would occur, and the performance of one act would not affect, disturb or interfere with any other act. But we have already noted that the brain is so constituted that all parts of it are inter-connected and many parts of it are involved in even the simplest action. The brain does not appear to act as though small parts of it worked independently, but rather as if it worked as a whole, or, at least, in large sections. The patterns or combinations involved in even simple acts may, therefore, overlap or partially coincide, so that the possibility of interference arises, especially if any two acts are rather similar.

Some experimental work has been done on this matter of interference and the part that it plays in forgetfulness. In one series of experiments, a group of subjects learned lists of nonsense syllables; some members of the group were then allowed to go to sleep, whilst the others carried on with their daily work. It was found that those in the second group forgot markedly quicker than those in the first group, both groups being tested after several hours. Other experiments bring out two points, first, that it is

barely learned material that suffers interference, for over-learned material is retained as well after eight hours' activity as after eight hours' sleep. This seems to suggest that a strong memory-trace resists interference better than a weak one does ; secondly, that so far as is known the interference only destroys, or weakens, newly-formed memory-traces.

Two practical points emerge from the foregoing results, one of which is important in education. It would seem that after a spell of learning, a slight pause, or period of quiescence, is necessary in order that the newly formed memory-traces may have a chance to, as it were, "set". It cannot be good, therefore, to take children straight from a lesson to, let us say, games. The second point is this, that perhaps the best time to learn anything that one really needs to remember is just before going to bed, or even in bed before going to sleep. It pays to let the learned material "soak in", as it were.

Freud insisted that all forgetting has an emotional basis, being founded on the motive of displeasure. We tend to forget those things that displease us, that give us pain or "make us feel small". There is something in this contention, but perhaps not as much as Freud urged there was. Not all psychologists would agree that the emotional associations are the all-important factors in forgetting.

Examples of forgetfulness due to emotional association are, doubtless, familiar to all of us. We all know how we put off doing—in other words, remembering to do—the things we dislike, paying bills, for example, or making appointments with the dentist.

Naturally, all normal individuals have good memories. It is thus easier to remember than to forget anything once learned and, yet, there is much material that we only need to remember for a short time, the fall of cards in a hand of bridge, for example, or the times of trains to a place that we may only have to visit once. It is, therefore, useful to cultivate a short memory. One obvious way in which that

can be done is by not reviewing, or repeating the material, for example, if, on the morning after the bridge party, you repeat to several persons, the cards that you held in a given hand then you are impressing more firmly on your memory the cards in that particular hand, and you are deepening the memory-trace.

PERSEVERATION

We all know the experience of being haunted by a phrase or a tune—it persists in “running through one’s head”, as we say, when we wish that it would stop doing so; or scenes from the day’s experience keep appearing in “the mind’s eye” when we are trying to get to sleep. Or, to take another example of the same type; one may hear some interesting piece of news, but not have time to think about it at the time it was heard because other mental work had to be done; then later in a time of rest and relaxation, that item of news reasserts itself in consciousness.

Now all these examples are illustrations of the same phenomenon, namely, the tendency of a recent activity to reassert itself without any apparent stimulus. This phenomenon is termed perseveration, and some people are much more liable to it than others. Interrupted activities especially tend to perseverate. If you have started to do something and become really interested in it, and are then interrupted, then that something is likely to perseverate. This seems to suggest that something analogous to a consolidation process goes on; a vivid experience or an intense activity is likely to persist for some time and while it persists, either in actuality or in thought, the memory trace is “deepened and hardened”.

RECALLING IMPRESSIONS

Recall or recollection may be likened to a conveyor-belt that brings up out of store what is needed. Learning does not of itself guarantee recall later, for retention may fall too low to permit of such. Even good retention does not

guarantee recall later, at least not when we want it. There often seems to be some form of interference. We all know many occasions when we wanted to remember something, but could not think of it at the time when it was wanted, but did so some time later. This sort of thing is familiar to all who have taken examinations; we come out of the examination room, maybe, confident that we have answered all the questions fully, and then, later, we remember so much that we might have written, material that we really knew but could not recall at the appropriate time. We meet a person, but we cannot recall his name until afterwards.

Emotions may interfere with recall—the process of bringing back into consciousness what has been once learned. Fear will do it; stage-fright is an obvious example, although stage-fright is really due to self-consciousness, fear of making a fool of oneself, so the cure is obvious, namely, to forget oneself, or at least to try to do so. That is not easy, but one way is by being “cocksure”, insist to oneself that one knows more than the other fellow, that if So-and-so can do such a thing, then “I can do so, too”. Enter an examination room with the feeling that the other candidates are less intelligent than oneself and the feeling of inferiority will go, and the fear with it.

Interference with recall may arise when two ideas enter the mind at the same time, and one, as it were, “gets in the other’s way”. A speaker at a meeting may hesitate and stumble in his speech. The reason may be that two alternative ways of expressing himself occurred to him at the same time, one recall blocks the other.

Partial recall is more common than complete recall. The impressive facts of a situation—at least, those that impressed us—can be fairly easily recalled, whereas the less impressive ones drop out of the picture. Most memory images are, in fact, inferior in realism and completeness to the actual scene recalled. They are inferior in that facts not noted in the actual presence of the thing cannot be recalled later in memory. We only recall those facts

that we were aware of at the time. Ordinarily, when we look at a building, for example, we only take in the general effect, we do not count the windows or the panes of glass, and it is the general effect that we remember; only if we picked out points of detail at the time of observation should we recall them later.

Association is one of the best helps to recall. We observe two events or objects, then the sight of the one recalls the other to our attention. A familiar example of this is afforded by the remark so often made when a person says that he has forgotten something that he was going to say. "Go back to where you first thought of it"; going back does often work because of the association of the place with the idea thought of in that place. "One thing brings up another" as we say.

MEMORY TRAINING

Is it possible to improve one's memory by suitable exercises and training? That question involves several subsidiary questions, namely, can the learning process be improved? Can the power of retention be improved? Can recall be improved? Since retention is passive there is no chance of direct control. Both learning and recall are active processes and may, therefore, be controlled. Experimental work shows that practice in memorising any given type of material (poetry, figures, etc.), brings great improvement in memorising the particular type of material in question, that is, the more poetry you learn, the easier it is to remember poetry. But the question then arises, can ability in memorising one type of material be transferred to another type of material? Up to a point improvement will occur, but not to the same extent. It is possible, by practice, to develop a very good memory for certain types of material, without necessarily developing a very good memory for all types of material. Actors are cases in point, for although they develop a very good memory for the material they need, they do not, in general, have very good memories for, let us say, figures.

Of course, there may often be a transference of skill from learning one type of material to another, for the student will, in developing his ability to memorise any given type of material, gain confidence in his memory, and it may be that he will learn to look for relationships and associations, and that skill will be useful when it comes to memorising other types of material, and remember, forgetfulness could often be referred to as mental laziness.

Section C. *Thinking.*

Thinking may be roughly defined as using the material obtained by the senses and remembered. It is of the greatest importance in human affairs for all social welfare and progress depends upon the ability of men to solve some, at least, of the problems that beset them, and to visualise better ways of living, better tools and implements, houses and what you will. It is, mainly, because man possesses the ability to think that he has evolved to his present position of pre-eminence in Nature. Thought frees men from acting solely on blind impulse, from expressing all their instinctive urges in a perfectly natural fashion (with consequent disaster and trouble) and enables them to get out of the ruts into which through habit they might otherwise sink.

Thinking saves time and effort, for it enables men to visualise possible courses of action, to weigh up the pros and cons of the different courses, and to arrive at conclusions without having to waste time trying out the various possibilities in practice. A man may have a simple task to perform, making a hen-coop, let us say. He may start right away collecting tools and nails and timber and just sawing and hammering haphazardly—the result is not likely to be useful. He may, on the other hand, sit down and think just what materials are available, what can be done with what he has, draw a rough plan, and then start work—in this case, the result will be more like a hen-coop. And what is true of making hen-coops is even more

true of more complex tasks. A little preliminary thought before starting a task, especially a new one, is far from being time wasted.

There is one difficulty about understanding the thinking process. We think in concepts but our senses give us percepts, that is impressions of colours, scents, sounds, smells. In some way, as yet unknown, these simple impressions are associated together in the mind so that we have an idea or concept of a thing which embodies all the sense data we have received about it. We can also think about things that do not exist, that is, we can build up ideas in the mind by combining impressions derived from various actual objects that we have observed. A good deal of discussion has taken place about the relation of the percept to the concept, but the matter is one for the philosopher rather than the psychologist, so the various theories that have been put forward need not detain us here.

PURPOSE OF THINKING

It may be said that thinking has two main ends or goals, namely, to discover something and to invent something; that is, thought may be regarded as mental exploration and mental manipulation. These two types of thinking are usually called reasoning and imagination. A little must be said about each. It may be as well to note here the difference between thinking and memory—it may be briefly put like this—in using our memory to answer a question or solve a problem, we are provided with a ready-made answer, for memory can only, by itself, supply answers to questions that we have met already; it can only help us to deal with situations with which we have been acquainted in the past. Thinking enables us to find answers—at least, sometimes—to new questions and problems. We do that by making use of memorised data, it is true, but we juggle with that data, we “put two and two together”, draw out the implications of the data. Take a simple illustration—if you are asked what twice

five are, you answer—from memory—immediately, ten. But if you are asked what twenty-five times thirty-five are, well, you cannot produce the answer from memory, you have to think, but in that thinking you make use of memorised data such as five times five.

REASONING

The simplest form of mental exploration is the use of memory, exploring past experience. You see a person whose face seems familiar and you proceed to "rack your brains" to recall where and when you saw the person before and what his name is. Now, when you explore you are setting out to discover something that is already there, even if unknown before or unrealised. So with reasoning—in its simplest form, you set out to search amongst your store of memories, in more complex forms you search for the implications of the knowledge that you have. For reasoning means more than merely using facts, or even seeing the relationships between facts, it means drawing conclusions. It may be said that, in general, there are two main types of reasoning, namely, deduction and induction.

DEDUCTION

If you are told that all cats are flesh-eaters, then you conclude that any particular cat will eat meat. That is a simple example of what is meant by deductive reasoning. It is the type of reasoning that starts with a general principle from which something may be inferred, or concluded, about a particular member of the class referred to in the general statement. It should be clear that the conclusion at which you arrive does not really give you new knowledge but it does make clearer and more individual what was contained in the general statement. Deduction is thus a "drawing-out". It is worth noting, in passing, that the word "deduction" is often wrongly used, as, for example, when we talk about detectives deducing, or making deductions, from clues. That is a wrong use of

the word, for what the detective has done is to use particular bits of information as a means of arriving at a general theory or explanation ; he has done the reverse of deduction, namely induction.

Deductive thinking can be—and usually is in books on thinking or logic—expressed in a form known as the syllogism, thus—

All mammals are warm-blooded,
This creature is a mammal,
Therefore it is warm-blooded.

Logicians—those who study and formulate methods of reasoning—call the first, or general, statement, the major premiss of the syllogism, and the second, or particular statement, the minor premiss, and they elaborate rules by which one can test the validity of the conclusion. These rules, however, need not concern us here, but those who are interested in these matters—and knowledge of methods is a help to clear thinking—may find the present author's book on the subject of some interest and help.¹

Deductive thinking is much used in law for lawyers have to apply general principles, namely, the laws of the land, to special cases. It is also used in mathematics, where, for example, the theorems of geometry, forming the general statements, are used to solve particular problems. If, for example, you are told that the two equal interior angles of a given isosceles triangle are each 45 degrees, then you can deduce that the angle at the apex of the triangle is a right angle, since you know that the sum of the three interior angles of any triangle is two right angles (general principle).

INDUCTION

Induction is the reverse process to deduction ; it is the forming of a general statement or principle by observation

¹ *The Right Way to Efficient Thinking, Reasoning and Conversation*, published in the *Right Way Series*, at 6/-. This book also enlarges on the mistakes and fallacies that people make in their thinking, gives some reasons why such are made and suggestions for overcoming them.

of particular instances and inferring therefrom. Suppose you notice that every red-headed person that you meet has freckles, then you may conclude that all red-headed persons, even those that you have not seen, have freckles. Now such a conclusion does give you new knowledge, for it enables you to make a statement about someone you have never seen, provided that you know that they have red hair. Your conclusion may, of course, not be true, since there may be some red-headed persons who have no freckles, but if the number of instances that you observed was very large, then your conclusion will more probably be true than if you had only observed a few instances. Inductive conclusions give probable truth, but the probability is greater the number of instances observed before making the induction.

Induction is a means of reasoning much used in science and in everyday life, where it is more usually termed "generalisation". It is to be noted that the inductions of science are more valid than those of everyday, despite the fact that they are similar in character, because the scientist tries to make as many observations as possible before enunciating his general principle and, after that, he constantly tests his statement by deliberately looking for exceptions.

It will be noted, too, that induction must precede deduction, since the latter starts with a general principle, or statement, and that is the result of induction, hence the truth of a deductive conclusion depends on the range and number of instances observed before the general principle is stated.

"HUNCHES"

Seeing the implications, or the meaning, of facts is largely an unconscious process, and a jerky one. We collect data relevant to a certain matter, and then suddenly, at a shorter or longer time afterwards, there comes "a flash of inspiration", the facts "fit in" and we see their meaning. The scientist Helmholtz was noted for fecundity of his

ideas and hypotheses. He said that his method was "to soak himself" in a given subject, to collect and absorb all the data that he could relating to it, and then to go off and do something else, like taking a walk. Then, suddenly, he would get his "hunch", his hypothesis or explanation. What happened was that his unconscious mind went on thinking, and only when the conclusion had been reached did it appear in consciousness. Many of us are, doubtless, aware of similar instances. There are those who claim to know certain things by intuition, or by inspiration. It may well be that most of the things so known are really the result of thinking that has gone on below the level of consciousness. The use of this type of thinking is of great importance to us all.

WHY DO WE THINK?

Humans are normally impulsive; they want immediate results and answers to their questions; they are impatient. Yet most of us think—at least, to some extent—before we act. We do not act impulsively all the time, and on all occasions. Thinking is hard work. Why, then, do people think? As a matter of fact, we have already indicated some of the reasons, but it may be useful to summarise them—

1. When we are faced with a problem, it is usually a saving of time, money and material, if some thought is given to the matter before action is taken.
2. Often when we do act more or less impulsively we are asked to justify such action afterwards. We then have to think up, or invent, reasons which give a plausible explanation for the action. This is rationalisation.
3. We shall note later that the curiosity instinct causes us to ask questions, e.g., to find explanations for natural events. Thinking is called for in finding those explanations.
4. In induction, we use thinking in order to apply general principles to specific cases.

5. We may be presented with a theory or explanation by another person. In order to check its validity, or to dispel doubt about it, we must think.

LANGUAGE AND THINKING

Although we may, when visualising a scene, for instance, not need to use words, in all rational thinking, we do use words. Watch a man who is thinking deeply, and you will often see his lips moving, you may even hear him talking aloud. The idea that those who talk to themselves are not quite sane is wrong; a man who is talking to himself may be thinking deeply. We all know that we use words when we are calculating, for example; we say to ourselves: "Twice four are eight and six is fourteen, that's one and two", or what you will. The history of man shows that this is true. Until language had been evolved there was no real rational thinking. You cannot get very far by using purely visual symbols in your thinking.

Section D. *Imagination.*

Imagination is inventing something, that is, it is the re-arrangement of ideas and concepts to make new patterns. It is mental manipulation. It differs from mental exploration in that it sets out to find something new, whereas reasoning is an attempt to find what is already there. Now it is clear that if we can imagine, we are to some extent, free, in our mental activity. We are not bound, for example, by things as they really are, but we can visualise what they might be, we can combine characteristics which are not combined in actuality. Thus we may never have seen a blue cow but there is no reason why, in imagination, we cannot combine the characteristic of blue with that of being a cow. We can in this way envisage possibilities and make new concepts.

A simple form of imaginative thought is afforded by a child playing with bricks and believing and saying that it is making a train when it places a number of them in a

row and pushes the row along. That is simple manipulation on the mental plane, the objects are there but they are given new meanings. On a higher plane, the same manipulation and change of meaning may be given, not to objects actually being observed but to ideas and memories. This rearrangement of ideas or concepts arrived at at different times, is often made use of by comedians, as by the one who told the story of crossing beetroot with potatoes to produce potatoes with blood-shot eyes.

Of course, there must be some control of the freedom, if the imaginative thinking is to produce anything useful. Perfectly free imagination, as in day-dreaming, leads nowhere, and may, if over indulged in, only lead a person to live in a dream world. Controlled imagination has, however, an end in view. This control may be of various kinds. There is the control that comes from the very ideas with which we are dealing. An architect, for example, may wish to design a house which shall be different from any other house, but he is controlled by the fact that the materials that he can use in its realisation are limited in number and function. He may rearrange the features of houses, he may introduce all sorts of new gadgets and so on, but he is controlled by the fact that a house is a place that is to be lived in.

There is this difference between reasoning and imagination, that whereas it is possible to reason almost at will, it is not possible to imagine at will. It seems that something akin to inspiration is needed before the imaginative powers work, but whilst the inspiration lasts, a good deal of mental activity may occur. The people of great imaginative powers—the artists and other creative thinkers—cannot work to order, they produce their results in prolonged but erratically timed periods of intense activity.

The mind seems to work in three ways in imaginative thinking—it combines or adds mental images, it separates or subtracts mental images and it substitutes mental images. We can combine the blueness and the cowness and

get the blue cow ; we can subtract the characteristic body-ness of human beings and think of disembodied spirits ; we can substitute the bow windows of a house we know in actuality, with ordinary windows in our imagination.

Imagination is that type of thought which enables men to conjure up the vision of things as they might be, to visualise better ways of doing things, to think up new methods or new tools. It also enables the individual to envisage as yet unrealised goals, to visualise the possibilities open to him, as a result of possible course of action, so giving him something to work for, making his activities purposive.

CHAPTER IV

MIND AS AN ACTIVE AGENT

It must be clear that if the mind were only as described in the previous chapter then it would simply be a passive receiver of impressions, similar to the automatic telephone exchange, which can only respond to messages that come into it from outside, and which does not initiate messages unless stimulated. Mind would be a thinking-machine. Those who possessed minds would be thinkers only and not doers. But we have already noted that living—survival, in fact—depends on persons responding to the signals they receive from their environment, on their reactions to sensory stimuli. Our everyday experience shows us that most persons are more active than thoughtful, more doers than thinkers. There seem to be more persons of the impulsive type (acting without sufficient thought) than there are of the opposite type. How often do we hear or say such phrases as "You are acting without thinking", or "What a pity you didn't think a little more before you did so-and-so."

Even those who do think, who have the ability to weigh up the pros and cons of any proposed course of action, have to act eventually, even if, from a purely rational point of view, the arguments for one course of action may be as good as those for another. (There is a good deal of truth in the saying, "Thinking is the hardest work there is, which is probably the reason so few engage in it".) Of course, if we are asked why we did such and such an action, we can always produce reasons that seem adequate and which justify our action, and which apparently show that we thought things out before we acted. But see under "Rationalisation", page 112.

Now what is it that leads to action? What makes people, even the thinkers, take one course of action rather than another? Even though, in the case of the thinker, the reasons for and against the action taken were nicely balanced?

If there were no factors motivating to action then human beings would be rather like the calculating-machines and "mechanical brains" that are now being constructed. A machine will not work without power, without some driving force. Mind as a perceiving, remembering thinking entity is rather like an internal combustion engine without any petrol.

In the case of mind, the motivating factor, the driving force or power, is the instincts, or to use the term that is more favoured by the Americans, "the unlearned motives". Mind is not purely passive; it is active, too. For purposes of study we may discuss these two aspects—the passive and the active—separately, although they both function together in actuality. To a consideration of mind as an active entity we now turn.

Section A. *The Instincts—urges to action.*

As we study behaviour, we note one important point, namely that persons act in certain ways and perform certain actions without having to be taught how to do them. Some of our behaviour is learned, but some of it is unlearned, that is we are born with innate capacities. The novel (and film) *The Blue Lagoon* illustrates one of these unlearned actions. The boy and girl who are shipwrecked on an uninhabited South Seas island grow up and, despite the fact that they have neither precept nor example, succeed in mating and producing a child. Another illustration is afforded by the way in which a baby can suckle without lessons in so doing. Such behaviour as these examples illustrate is shown by animals, too, and is termed instinctive.

If the theory of biological evolution is true, it would seem probable that the human animal should be similar in

many ways to other animals, not merely in anatomical structure but in behaviour. It is better to commence our study of this instinctive behaviour with animals for the reason that in their case, their behaviour is not complicated, as it is in the case of human behaviour, by those aspects of mind that we call rational. And, as we study animals we are struck by the fact that their behaviour seems to show that they have a number of inborn drives or urges to action, that certain situations almost automatically provoke them to certain types of action.

Let us take a simple and oft-quoted example. If a young bird is taken from a nest one spring and reared away from all others of its species, it will, when the following spring comes, set about—if given the means and opportunity—building a nest, a nest typical of its species, and that despite the fact that it has never seen such a nest built. Here we have a certain response—the nest building—to a certain situation, namely, spring with all its concomitants of temperature change, glandular changes inside the bird, and so on. The bird has acted in a certain way without having to learn by experience. Many other examples, especially from the insect world, might be cited.

Much human behaviour seems capable of explanation along similar lines, that is, on the lines that it is the almost automatic reaction or response to a given situation. Now, in the case cited above, that of the bird building her nest, there seem to be at least three things the bird is trying to do, three urges or drives being satisfied—these are: an urge to build or create something (the nest); an urge to provide for the young, an urge to make those young possible, to mate. We can call those urges or instinctive drives the creative, the maternal and the sexual. Behaviour expressive of these instincts can be seen amongst humans. Other instincts, or urges, which we share with animals are those of self-preservation, self-assertion, food-seeking, curiosity and acquisition. There appear to be, in humans, however, other urges which do not seem present amongst animals, that of laughter, for example.

There is some difference of opinion amongst psychologists as to the number of instincts which humans possess, but, on the whole they agree in general. It is only when we come to the detailed lists that we find differences. But, however psychologists may differ in this matter, which, after all is more or less a matter of classification, they are all agreed on this, namely, that man, like all other living creatures, is born with an individual mental endowment. This innate characteristic—differing according to the species or even the individual—shows itself in the way in which individuals, or species, react to given situations. An elephant will react in one way to a given situation, a dog in another, a man in yet another.

There is this point to note in the case of humans, namely, that the behaviour that we term instinctive is more clearly seen, and accounts for a greater range of the total behaviour, during infancy than it is and does in adult life. In the latter stage, instinctive behaviour is chiefly concerned with the fundamental needs—the need for food, the need for sex and the need for society. Behaviour of a nature that is designed to satisfy such fundamental needs comes naturally and has not to be taught. A good deal of adult human behaviour is of course, the result of rational thought and premeditation, or even convention. Persons differ in the relative proportions of instinctive and rational behaviour that they exhibit and those differences will depend on education, social position, intelligence and such factors. When it comes to the satisfaction of the basic human (and animal) needs, however, then, as Kipling wrote:

“The colonel's lady and Judy O'Grady
Are sisters under their skin”.

In times of dearth or danger, all men (or nearly all) act in the same way. The differences in human behaviour which are the results of the non-basic urges, are the result of a relatively modern and relatively thin veneer of so-called civilisation that covers the primitive that still survives in all of us, however educated and cultivated we may

be. The instincts are universal and present from birth.

Arising out of the primary, or basic needs there are what may be termed secondary needs, for example, in order to satisfy the sexual urge it is necessary to go through some form of courtship ; in order to satisfy the need for society, it is necessary to forgo some of one's own desires, in order to fit in and to maintain the cohesion of society.

HUMAN INSTINCTS

Psychologists vary in the number of instincts which they suppose humans to possess. Freud, for example, suggested that all human activity, or behaviour—at least that behaviour which could be considered instinctive—could be accounted for on the thesis that man has but two primary instincts or “drives”. He termed these primary impulses the “pleasure-principle” and the “reality-principle”. The former is the more primitive and more powerful, and is manifest at all stages in the individual's life ; it is evident in such egocentric impulses as the seeking of pleasure (including that of nutrition), the avoidance of responsibility, the hatred of change and fear of death ; in other words, it is the source of all those forms of behaviour which are conducive to, or essential to self-preservation and self-development. The reality-principle is concerned with, and responsible for, that behaviour by which the individual seeks to adapt himself to reality, the world as it actually is, and not as it is wished it might be. Freud went on to say that although this second principle motivated a good deal of our civilised and social behaviour—helps us to “fit in”—yet it could never cancel out the activity and impulses derived from the pleasure-principle, so that there was always a mental conflict going on, even if we were not aware of it in consciousness (see Part II for further discussion on this conflict).

The best known worker on this matter of the instincts is, however, William McDougall, who was born in Lancashire, but did most of his research and writing in the United States. He lists fourteen instincts. Some workers

would probably regard some of his fourteen as variants and, as we shall see, they fall into three main groups. It may be apposite here to give McDougall's definitions of an instinct. Here it is: "An innate disposition which determines the organism to perceive, and pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object and to act in regard to it in a particular manner, or at least to experience an impulse to such an action".

Let us illustrate this definition with a simple, rather silly and yet everyday example—young man (the organism) perceives a pretty girl (object of a certain class) and pays attention to her; he experiences an emotional excitement of a particular quality (which it is scarcely necessary to describe) and action of "a particular manner" follows, or since conditions and conventions may not permit, he feels an impulse to act in a "particular manner". Many of us—at least those who are males—know that we often have an urge to kiss a pretty girl, but far more often than not the urge has perforce to stop short of action (unless it's Christmas, of course, and there's mistletoe about, or the girl is equally willing and conditions allow action to ensue).

It may be as well to list McDougall's fourteen instincts. They are the instincts of escape, combat, repulsion, submission, self-assertion, curiosity, acquisition, food-seeking, construction, laughter, mating, parental, appeal and social or gregarious. We can divide those up into three groups. It will be recalled that earlier, when considering the bird building her nest, it was stated that her behaviour was evidence of certain urges, so too with the behaviour of other animals. Now it is possible to show that all animal behaviour is the result of, or expression of, three primal instincts or drives to action, namely:—

the self instinct —whose purpose is self preservation
and self welfare ;

the sex instinct —whose purpose is mating and pre-
servation of the species ;

the herd instinct—whose purpose is mutual help and protection (well seen in some insects and certain animals, such as wolves, buffaloes and deer).

It is only reasonable to suppose that man has those three primary urges, too, and, as a matter of fact, these are the headings of three groups into which McDougall's fourteen fall. Thus:—

a. Instincts concerned with the Self.

Self-assertion—it is perfectly natural to throw one's weight about (if possible).

Escape —e.g., from dangers.

Combat —natural impulse to fight anything inimical to our welfare.

Repulsion —animals especially seem to know what is bad for them.

Submission —this seems odd at first sight, but is not really so, since giving in may be only means of survival.

Acquisition —possession gives sense of importance.

Curiosity —obviously the more we know the better we can overcome difficulties, and knowledge comes by being curious.

Construction—urge to create, both for prestige and as a memorial of the self.

Food-seeking—obvious action for survival.

Laughter —linked with pleasure.

b. Instincts concerned with Sex.

Mating —concerned with procreation.

Parental —concerned with care of young.

c. Instincts concerned with the Herd.

Appeal —man feels helpless by himself.

Social (or gregarious)—man wants not merely company but to take part in the activity of the group.

Note. Individuals and species vary in the strength of these instincts.

More often than not, two, or more impulses or drives to action are active at the same time—one impulse at a time is not the general rule—for example, the combative and parental instincts may function together, as in the case of a ewe with a lamb. Normally, a ewe is quiet and shy, apt to run away if danger, in shape of man or dog approaches, but the position is very different when she has a lamb, for then the urge to protect her young (maternal instinct) combines with the combative instinct (normally ill-developed in ewes) and a ewe will then defend herself and her lamb, or even attack a dog. On the other hand, one instinct may cancel out another, for instance, although, normally, a person will strive for self-preservation, it may happen that a mother will sacrifice her life for her child, that is, the maternal impulse is stronger than that of self-preservation.

Examples of the linking of the impulses to self-assertion and mating are very common in the animal world, e.g., in the case of the courtship dances of many species of birds, in the display of his beautiful tail-feathers by the peacock, and so on. Examples can also be readily observed in the human sphere, as when young men and women (and those not so young) dress themselves up and "preen" before those of the opposite sex. Of course, in the case of humans, reason enters in to some extent, and leads different people to use different methods.

The instincts related to the self show themselves in various ways in social behaviour but in general, they lead to such forms of behaviour as will conduce to the individual standing out in the group to which he belongs. We all have an urge to "shine", to be somebody, and that urge expresses itself in various ways, as in "showing-off", in gossiping (for the retailing of some spicy bit of scandal tacitly implies that the person so acting has sources of information that others have not), in talking loudly, or dressing differently, in being unconventional, in feigning illness (especially in talking about one's symptoms), and so on. Most people try, in their various ways—for

persons differ in this respect—to attract attention, to be noticed, especially by members of the opposite sex, because such behaviour is a result of the two primary and powerful instincts of self and sex acting together.

In society, the expression of the sex instinct is restricted by all sorts of conventions and codes. These restrictions vary in different societies, both in time and place, and may not always be of equal value. To take a few illustrations—whilst kissing is allowed in public in England, such would be frowned on as most immoral in Japan; whilst women in Islamic countries go about heavily veiled, in the South Seas (no hotter climate) they “just wear a string of beads”; whilst in Britain no householder would offer a guest the opportunity of sleeping with his (the householder's) wife, amongst some primitive tribes such is done. Sex “taboos”, and customs relating to sex vary, not only with the society but with the classes in any given society—what is regarded quite as normal conduct between man and woman in Mayfair, might be deemed immoral in the back-streets of Wigan.

As mentioned above, the strength of the herd instinct varies from species to species amongst the animals. It is very strong in some cases, and not always with those animals that are weak, which is what might be expected since the purpose of the instinct is protection—“Union is strength”. Obvious examples of animals, which although capable of looking after themselves, yet live in herds or packs, are buffaloes, wolves and jackals. Man is a very social animal; he is gregarious and fond of the company of his own kind. This had, in early days, a very utilitarian purpose, for man is a feeble creature compared with many other creatures, unless he has the weapons that his superior intellect has invented, and in early times, he did not have such. Everyday illustrations of the herd instinct (the impulse not only for company but the urge to take part in the activities of the group) are afforded by the way in which people will imitate one another without good reasons, for example, women and new fashions.

How often do we see a woman wearing a coat or hat which does not suit her in the least, but she wears it just because it is fashionable and everyone else is wearing something similar.

Solitary imprisonment is a severe punishment just because it makes the natural expression of the herd instinct impossible. We feel sorry for the castaway—the Robinson Crusoes—because, being isolated from their fellow men and women, they cannot behave in accordance with the promptings of that instinct. Incidentally, as we shall see later, to prevent the manifestation of an instinctive drive may be dangerous. It, therefore, follows that solitary confinement may do more harm than good to the prisoner—it may be punishment for the individual but, at the same time, it may make that individual even more mentally unbalanced—and all criminals are, to some extent at least, mentally unbalanced to start with.

It may happen that for various reasons, mainly religious ones, an individual may prefer solitude, may become a hermit. In such cases the expression of the herd instinct is made voluntarily impossible, but the fact that such can be done shows that our higher mental faculties—reason and so on—can override our lower ones, and that our behaviour is not entirely motivated by our instincts. In any case, it must be remembered that the intensity of the instinctive drives varies with individuals not merely as regards all, but each; some people appear to have more developed sex instincts than others, some are more unselfish and altruistic than others, and so on.

The parental instinct is shown in that type of behaviour which is said to be indicative of the so-called "mother love", since such behaviour is popularly supposed to be more associated with females than with males. But even if that were true with humans—and it is far from being the case—it is not true of other species. The male stickleback, for instance, does the hatching and nursing of the young, and amongst fish in general there can be little "mother love" since the females pour out their eggs into

the water, leaving them to be hatched out sometime, somewhere, with no further attention from her, unless sometimes to eat them!

A little may be said about the curiosity instinct since the possession of it by man has been of the greatest importance. It accounts for much of the so-called destructive behaviour of children, for the child who takes a toy, or other article, to pieces to find out "how it works" is merely giving expression to that instinct, as is the persistent "Why?" of the child. The research worker is merely giving vent to his curiosity instinct. We are all born with the instinct, but unfortunately, much so-called education tends to stifle it, and many children leave school—that is, they finish their formal education—far less curious than when they started. Luckily, for the progress and welfare of humanity, there are always a few who go on asking questions, seeking new knowledge, trying new methods. By the way, the fact that humans possess this instinct is an answer to those who say that no one ever has a new idea after forty, for if the instinct is well developed—and instincts are part of our mental endowment for life—then it may well be, in fact is the case, that some, at least, have new ideas at any age.

The important point to note is this, namely, that there are in humans, as there are in animals in general, natural drives or urges (instincts) which compel them to act in certain ways. This seems to imply that the behaviour of humans is not purely a result of the physico-chemical processes that take place in their bodies. These drives or instincts form the energy by which men live. Before passing to a consideration of the implications of that last sentence, it may be interesting to note that McDougall held that there is a specific emotion associated with each instinct, at least with the primary ones, so that when a human acts instinctively, he also feels emotionally. The emotion of fear, for instance, is associated with the instinct of self-preservation—we feel afraid when something is present which may be inimical to our safety. We may

feel lonely, feel that we need company; that is the emotion connected with the activity of the herd instinct.

DIRECTION OF INSTINCTIVE DRIVES

If it be true, as stated above, that the instincts convey the energy by which we live, then it is obviously of the greatest importance that we do not unduly interfere with their expression. Since we live in society it is clear that we cannot always direct our instinctive behaviour towards the appropriate biological end. We cannot, for example, make love to every attractive girl we see; we cannot acquire everything that we want. In fact, insofar as we allow the herd instinct to express itself—either voluntarily or involuntarily—we limit the expression of the instincts connected with the self. In the act of aggregating into society men have surrendered something of their self-instincts. It would be obviously impossible to maintain the cohesion and solidarity of a community if every individual composing that community were to act consistently in accordance with the promptings of the self and sex instincts.

It is necessary, therefore, to have alternative ways of directing the instinctive drives. An analogy may be helpful—let us take a turbulent mountain stream. Now there are three ways in which it can be dealt with—the stream may be allowed to run naturally without any interference (but this may result in disastrous floods, etc.); it may be dammed (but the dam may burst with dire results, or the stream may be diverted, again with disastrous consequences); the stream may be canalised and controlled, so that, whilst flowing more or less naturally, it yet does useful work, e.g., in driving turbines.

So with the instinctive drives—they may be directed or dealt with in three ways. They may be allowed their natural expression (but, as with the stream, this may have unfortunate results); they may be repressed (but, as with the dammed stream, there may be eventual trouble); they may be sublimated, that is, directed into useful and safe

means of expression. A little must now be said about each of these three ways of dealing with the innate drives.

EXPRESSION

The normal outlet for an instinct is behaviour such as is to lead to the characteristic end for which the instinct in question is designed. The group of instincts connected with the self, for instance, have for their purpose and end, the advancement, happiness and importance of the self; the sex instincts drive the individual to sexual intercourse and the care of the young; the gregarious or herd instincts lead the individual to associate with others of his own kind.

But—and this is important—even though the instincts may be strong, it may not always be easy, or possible, to allow them their characteristic expression. A man may feel like “throwing his weight about”, feel a tendency to assert himself, but it may be unwise for him to do so, if, for example, he is in a subordinate position. So it may be that fear of losing his job may prevent his expressing his urge, at least whilst under the eye of authority. It may be, though, that this same urge will lead him, when he returns to his home, to “take it out” on his wife and children.

In the case of the sex instinct, especially, there is often difficulty about the natural expression of it, because of the conventions, or moral codes, of the society to which the individual belongs. An engaged couple may feel a strong urge to indulge in sexual intercourse—it may be argued that love is the only real justification for such action—but their moral code may be such that they feel that this behaviour would be wrong. The inability to express the instinctive urge naturally may lead to perverted behaviour; in any case, it will give rise to a feeling of frustration. This may show itself in a general feeling of “jumpiness”; it may show itself in the person concerned being quicker tempered than usual, and he may be “touchy”. One of the unfortunate results of the housing

shortage to-day, which leads to long engagements in many cases, is this prevention of an instinctive urge finding its natural biological outlet or expression.

Again, it may not always be possible for a person, however lonely he may feel, to be in the company of others and to share in their activities. Someone must man the lighthouses, for example.

Of course, it must be remembered that the way in which an instinctive urge is expressed in behaviour, will vary with the culture, education and training of the individual. Amongst primitive peoples, or persons of a low cultural level, or poor education, the combat instinct, for instance, in the form of physical action, in fighting those who seem to be acting against their interests. On the other hand, the same instinct may show itself amongst those of a higher cultural or educational level, in fighting against social evils, against disease or against the bacterial and insect enemies of mankind. At the level of the child, the curiosity instinct may be expressed in pulling things to pieces "to see how they work"; or in asking numerous "Whys?". The same instinct may be expressed, in the case of adults of low intelligence, in a "Nosy Parker" attitude to the lives of their neighbours; it may be expressed, at a higher level, in the research work of a Rutherford or a Newton. The scientist seeking to discover Nature's secrets and the child who takes his father's watch to pieces, are both, in their respective ways, expressing the same instinct of curiosity. Intelligence comes in to aid the way in which the urge shall be expressed.

The instinctive drives are common to all men, but the ends to which they are directed, the behaviour in which they are expressed, will vary with the individual and those variations will be reflections of the cultural levels, intelligence and educational status of the individuals.

The important point to note in this matter of expression is this—it is not possible or expedient for us to express our innate urges in the natural and appropriate way. We

cannot always act in such a way that any given instinctive drive is allowed to reach its appropriate end. Now, it is not good for us to block up the channels through which our energies flow; the result of so doing is conflict and frustration, with their attendant mental states, such as "edginess", short-temperedness, hastiness and inattention. What then can we do? What are the alternatives open to us? There are two—one bad, the other good, namely, repression and direction plus sublimation.

REPRESSION

When an instinctive drive cannot be naturally expressed, then a state of tension is set up in the mind; such is painful, so the mind relieves the situation by repression, that is, by driving out the urge from consciousness, by forcing it down (and here we speak metaphorically) into the lower and unconscious levels of the mind. A man may be, for instance, in a job in which he takes little interest. The natural thing is to escape from it—it is instinctive to avoid that which gives displeasure—but he may be unable, for various reasons, to leave it immediately or in the near future. The result is the setting up of a state of tension in his mind, which may show itself in poor work, inattention to details, and so on. Nature may, however, relieve the painful state of mind by repressing the urge to escape and the individual may become partially reconciled to his lot. His inattention and irritability remain, but he may not be aware of what is causing those states. The repression of the urge to escape may be only temporary, and the desire to change his job may assert itself again if conditions change, if, for example, the job ceases to be subject to direction, or the individual is left a legacy which will enable him to live whilst learning another profession.

A child may, to take another example, be continually told to keep quiet when it asks questions. The result is that the curiosity instinct becomes thwarted and repressed, and if this thwarting is continued over a

lengthy period, especially if the child is punished when it expresses, or tries to express, its curiosity, the result may well be that the instinct in question is permanently repressed. This would mean that the child would grow up into a person—and there are many of them about—who has an apathetic attitude towards knowledge, who takes little or no interest in questions of the day, having little interest but eating, drinking and satisfying the bodily wants.

Moral and social codes are often causes of repressions. There are sects and denominations, for example, which hold that dancing and such inter-sex entertainments are wrong. But it is perfectly natural for men to associate with women, and dancing does afford an opportunity for them to get together in a way that enables them to "work off" some of their feeling for each other, in fact, it may be regarded as a conventional way in which natural impulses are sublimated. Most normal men, for instance, wish to embrace a pretty girl, but things being as they are, they cannot do so in every case. They can, however, express something of their desire when a certain type of music is being played, namely, dance music. Is this cynical? Well, watch who has the best time at a dance. The custom of kissing under the mistletoe is another socially acceptable way in which natural urges may be expressed. Now the interesting point about such sects as those mentioned above is this, which is illustrated by a case from Derbyshire.

Members of a certain Nonconformist body there held strict views about dancing, but at their annual Sunday school parties, the favourite games were those in which kissing played a major part, such as "Postman's Knock". The repressed urges were able to find a permitted outlet along their natural path. It is apposite here, too, to note how often one finds teetotallers who will rail against the evils of strong drink, and yet who will, at Christmas, think it quite right to have strong brandy or whisky sauce on their pudding.

The repressions on natural expression of normal instincts caused by conventional codes—codes which often have little rational justification—are often evaded in various ways as indicated, or if they are not evaded, may give rise to internal and dangerous mental conflict (see p. 125, under *Psycho-analysis*). Conflicts rob the mind of energy and prevent concentration on the job in hand, whilst perversions, to which repression often gives rise, distort our knowledge of ourselves and of life.

CONTROL AND SUBLIMATION

When the natural expression of an instinctive urge is not possible, then some other alternative must be found, if repression, with all its ills, is to be avoided. We must realise that the possession of the instincts is perfectly natural; there is nothing evil about them, or their normal expression, but, as stated, it may not always be possible to express them in society. One of the consequences of men associating together in society is some abrogation of individual rights. We should not be prudes about our natural urges as so many people in the past and present have been, and are. *No instinct should be regarded as shameful.* When we cannot express an innate urge naturally then we should seek to control its expression and direct its energy into other channels, as in the case of the stream in the analogy cited above. That is the way of sublimation.

This control is sometimes made easier by the realisation of other ideals and values. The man who was bullied by his employer, for example, was acting perfectly naturally in feeling aggrieved and wishful of asserting himself. But the realisation that "throwing his weight about" would endanger the welfare of his wife and family would help as a deterrent to his doing anything foolish, and so enable him to control his natural reaction. Part of the process of education is the inculcation of social ideals and sentiments which help us in this respect.

This sublimation, or re-direction of instinctive energy, into other and safer channels of activity is mainly an

unconscious process. Many people have successfully sublimated their urges without being aware that they have done so. Take, for example, the many single women who are happily engaged in nursing. They are sublimating their maternal instincts, and are perfectly content in their work. They did not consciously choose their profession with that end in sight, yet, all unwittingly, they have re-directed their instinctive energy into channels which bring them freedom from internal conflict. Things being as they are in this country, with apparently a permanent surplus of women over men, and the social and moral codes what they are, it is impossible for many women to find natural means of expressing their sex instincts, of which the maternal instinct forms a part. It must be remembered, however, that the sex instinct has a second part, namely, that of mating, with a view to reproduction or creating. Successful sublimation must direct the instinctive energies along paths which produce results comparable to those which the natural line of expression would have produced. Again, the majority of single girls sometimes indulge in masturbation, to relieve the physical urge.

Care of the sick, or the young, or animals, may be a successful substitute for care of one's own children, but it may not necessarily be a substitute for the expression of the mating urge. The distinctive feature of the biological urge to reproduction is its creativity, therefore successful sublimation for this part of the sex urge must be along the lines of creative activity. Some ways in which this can be accomplished is by writing, by organising societies, by producing works of art, etc. It is noteworthy, in this connection, how many creative artists are childless, have few children, or are even unmarried. The sex instinct has been sublimated and finds other forms of creativity.

LEISURE TIME ACTIVITIES

The activities in which we engage when not working are often examples of the ways in which we sublimate. It is impossible, or wellnigh so, in civilised communities, for a

man to express his pugnacious and self-assertive instincts in the natural physical way, but he may be able to do so in a perfectly lawful manner if he joins a boxing-club. Going to the "pictures" is a way in which a person may "work off" his or her sex inclinations, by projecting himself into the hero of the film. Of course, film-going is also an escapist activity. It may be a means by which a person gets away temporarily from drab and depressing surroundings into a brighter and more cheerful world, even if only in imagination.

Many types of occupation to-day offer little or no opportunity for a man or woman to express their creative instinct, or their curiosity. The taking up of suitable hobbies will often help in this case. Model-making and dress-making are obvious illustrations of how a person can make something for themselves, by themselves, as are such hobbies as painting and sculpture. Natural history study, or local history study, afford illustrations of the way in which curiosity can be satisfied. The acquisitive instinct may find an outlet in collecting—stamps, butterflies, engine-numbers, or what you will. For those who are lonely at their work, there are sports clubs and youth groups, social clubs and the "local". One of the reasons why men go along to the latter place is to meet others and give their social instincts an outlet.

Dancing affords an opportunity to meet the opposite sex, and indulge in a mild degree of flirtation, in a perfectly legitimate manner. It is most unlikely that ballroom dancing would survive for long if it were not for the fact that the two sexes meet in that activity.

It has been well said that the more activities of this sort, the more hobbies one has, in reason, the better, for indulging in such does afford opportunities for all parts of the psyche to find some sort of expression. "In reason" is the operative phrase, for there may be the danger that too many hobbies may distract attention from the main business of life, namely earning a living.

There is another value of hobbies and leisure time

activities that deserves mention. How often does one notice that the man who has no interest outside his work "cracks up" when the time comes for him to retire. The old proverb about "Satan finding some mischief for idle hands to do" may not be literally true, but it does contain a valuable truth, namely, that a human must have some interest in life in order to go on living in any real sense of that word. If there is no interest, then the individual's thought gets turned inwards and morbid introspectiveness may ensue, with serious psychological, even physical results.

A SUMMING-UP

Mind is best regarded, not as a thing, but as an activity, and the energies of the mind are derived from the instincts, the inborn urges to action of certain kinds. It may well be that the various instinctive drives that we have listed are really only manifestations of one underlying basic urge, or drive, the tendency to self-assertion—as Adler holds—or the unconscious desire to compensate for a feeling of inferiority.

We are all born with certain urges, drives to action which are independent of our reasoning mind and conscious thought. Reason comes into the picture in enabling us to decide between possible ways of expressing the urges, for things being as they are in civilised society, we cannot always express our drives naturally.

This means that many of our actions and much of our behaviour are prompted by instinctive drives that we may be, through mock modesty and convention, ashamed to admit. Take the case cited above, of dancing. How many people who go to dances will admit openly that they go because they have a chance of holding a person of the opposite sex a little closer than they can do in other circumstances, because a band is playing a certain sort of music? We often make up reasons, so-called, to justify our actions, but, as often as not, those reasons are concocted

afterwards as justification for what we have done when we are asked why we have done it. That is, we rationalise a good deal of our behaviour.

Although all humans possess the same instinctive drives, the strength of each varies from individual to individual. There are some who are naturally more aggressive than others, some who are more sex-minded, and so on. These differences may be dependent, to some extent, on the glandular and other physiological make-up of the body. Sometimes it is possible to restore normalcy in these matters to people who are unbalanced, by suitable hormone or other treatment.

Section B. *Emotions and feelings.*

The innate drives, or instincts, with which humans are born have each their appropriate emotional accompaniment. In practice, we are aware, not of the instinctive drive, or of the end in view, but of the emotion accompanying the instinct.

It is necessary to define what the psychologist means by an emotion, since, like many other words he uses, it has a very different meaning from that which the same word has in everyday usage. In the latter case, it means more what the psychologist means by the word feeling.

An emotion is more than a feeling. It is perhaps to be defined as a response to some stimulus, a response of a special type made up of physical sensations, changes, a definite impulse to action and simple feelings. A person in an emotional state is in a "stirred-up" or "moved" state. The subjective experience is that of aroused, and action-urging feelings.

It is clear that when an instinctive urge, together with its accompanying emotion, wells up inside an individual, then certain physiological or organic changes take place in his body. The combative instinct, for example, is accompanied by extra activity of the supra-renal glands which pour an increased supply of the hormone, adrenalin, into

the blood stream. This, in turn, raises the blood-pressure, increases the sugar content of the blood (so giving extra fuel for energy), dilates the eyes, drains blood from the surface capillaries so as to increase the supply to the vital organs—in other words these changes make the individual a more effective fighting machine. The food-seeking instinct is accompanied by increased activity of the salivary glands.

There is considerable difference of opinion as to whether the emotion comes before or after the organic changes, that is, as to whether the increased glandular activity gives rise to the emotion or the reverse. Whatever the order may be, this much is certain, namely, that the instinctive action cannot function until the organic changes have taken place.

Obviously, the degree of organic change will vary with the instinct aroused. In the cases cited the changes are marked but in the case of such instincts as those of curiosity, or submission, the changes will be only slight. Yet, even in satisfying the curiosity instinct, there are some bodily changes, increase in brain activity, for example, in the case of learning which is one way in which this instinct is satisfied.

We are all aware, too, of the impulse to action when in an emotional state. The herd instinct, for example, prompts us to take part in social activities, to join societies and, maybe, play a part in local government. It is not just enough to feel curious, but one often does something about it, even if it is only looking up an encyclopædia, or trying an experiment. We do not merely wish we had so-and-so but we do, as often as not, set about getting it. It may happen, of course, that, for various reasons, it is not always possible to act in accordance with the emotion. It is on such occasions, as a matter of fact, that we realise the need for action, for when unable to express the emotion in action, "to work off our feelings", that we feel a sense of frustration, a sort of "edginess" and incompleteness.

As a result of the two aspects of an emotion described, it is clear that emotions are revealed in outward forms. Not only does an individual have the internal subjective emotional experience, but outside observers can see objective signs of the inward experience. A person's emotions may be shown by expressive movements, by verbal expression or by certain other signs.

Amongst the more common ways in which an emotion is expressed by bodily movements we have laughing, pouting of the lips, weeping, sneering, nodding of the head for affirmation, shaking the head for negation. It may be asked why it is that we make use of such movements; why, for example, do we draw up the corners of the mouth and show our canine teeth to express contempt, why shake the head for negation? Darwin put forward the suggestion that such movements were survivals of acts that once were useful in the life of the individual and the race. Shaking the head for negation, for example, was supposed to date back to an infantile period when such was done in order to reject undesired food. The sneering gesture, with its nasal constriction, was originally a protective movement in the presence of a bad smell. Showing the teeth in scorn, or contempt, dated back to a prehuman stage when such an act was useful to a gorilla, for example, with its large canine teeth, for it served to frighten enemies.

As we grow up, especially in a civilised society, we learn to control and even conceal expressive facial and bodily movements indicative of emotion. We, especially members of the Anglo-Saxon race, tend to develop "poker-faces". It does not always pay to display one's emotions in public. We may listen to a joke which we have heard many times before, but instead of showing what we really feel, we deliberately simulate a laugh.

Voice changes are often very marked in emotional states. This happens with animals, too, for example, what may be termed the "love-call" of an animal is very different from its ordinary call. It is fairly easy to detect, in the case of humans, the rising inflexion of the voice when questions

are being asked (curiosity instinct), the higher-pitched tones of the excited person, or the one who is afraid, or the pleading tones of the lover, or the soothing tone of the mother.

Certain other outward signs are not so easily controlled as facial or bodily movements. These include the way in which a cat's hair will rise in fear or anger, the appearance of "goose-flesh", perspiration and pale face, in humans, who are afraid, and the flushed face of the angry person. Such outward signs are not easily controlled, because in some cases they are the result of the glandular changes mentioned above.

The third element in an emotion is the feeling—this is purely subjective and is only known to the person experiencing the emotion. The presence of the feeling, especially if it is strong, leads to a restriction of the field of consciousness. If a person has his self-instinct aroused, let us say by another person acting in such a way as to belittle him, then his feeling may be so strong that he can think only of "getting his own back", of ways in which he can assert himself at the expense of the second person. So strongly may his feelings be aroused, so narrowed his zone of consciousness that he can scarcely think of, or notice, anything else, at least for the time. He may become inattentive to his surroundings, to what is said to him by others. We can see this narrowing of consciousness due to strong feeling in the case of a parent who will dash into the midst of traffic to save his child. The paternal instinct, and its accompanying emotion and its associated feeling, will make him blind to the risks that he, himself, may run.

Each instinct seems to have its associated feeling—let us list McDougall's fourteen instincts, together with the accompanying feelings:—

- | | |
|-----------------------|------------------------------------|
| 1. Escape instinct | —accompanying feeling—fear. |
| 2. Combat instinct | —accompanying feeling—anger. |
| 3. Repulsion instinct | —accompanying feeling—
disgust. |

4. Parental instinct —accompanying feeling—love,
tenderness.
5. Herd (appeal) instinct—accompanying feeling—feeling
of helplessness.
6. Mating instinct —accompanying feeling—
sexual feeling.
7. Curiosity instinct —accompanying feeling—
wonder, mystery.
8. Submission instinct —accompanying feeling—
humility, devotion.
9. Self-assertion instinct —accompanying feeling—pride,
domination.
10. Social instinct —accompanying feeling—
loneliness, nostalgia.
11. Food-seeking instinct —accompanying feeling—
craving.
12. Acquisitive instinct —accompanying feeling—
ownership, possession.
13. Constructive instinct —accompanying feeling—
creativity.
14. Laughter instinct —accompanying feeling—
amusement, relaxation.

It may be asked how we tell the emotions apart. The practical answer seems to be that we describe the external situation in which each occurs, and the type of obvious response which the situation demands. To the external situation of danger, for instance, the overt response is the emotion of fear, the longing to get away. To the unexpected situation the emotional response is that of surprise.

We saw, when discussing the instincts, that two or more may be active at the same time. This means that we may experience more than one emotion, or feeling, at one and the same time. You may be asked to give a short public speech. It is possible that you will then feel the two emotions of fear and pleasure, for there will be fear lest you make a poor show, and pleasure at having been asked. Sometimes, when two primary feelings are aroused at the

same time, they combine to form a blended feeling. Such blended feelings are—scorn, which is a blend of anger and disgust; admiration, which is a blend of wonder and submission; awe, which is a blend of admiration and fear. Some hold that whilst the primary feelings are common to man and many of the animals (animals show fear, curiosity, loneliness, craving, etc.), it is only man who has blended feelings. Darwin, however, seemed to believe—from the example cited above—that some animals could show blended feelings, for instance the gorilla feeling scorn.

Section C. *Temperament and types of personality.*

Closely related with the subject of the emotions is that of temperament, another word which is used rather differently in ordinary language from the way in which it is used by the psychologist. Emotion and temperament are related, since many psychologists hold that a person's temperament is largely determined by his inherited feeling tendencies, and by the interaction between this affective or feeling inheritance and the environment.

When, in ordinary conversation, we refer to a person as temperamental we usually mean that he is one who changes his moods, or attitude, rather easily; that he is one who is "up in the air" one moment, and "down in the dumps" the next, or that he—or more usually, perhaps she—is apt to get excited and fly into a temper over small matters. When the psychologist uses the word temperament he refers, on the contrary, not to something that is changeable and transitory, but to the characteristic nature or attitude of a person.

Many attempts have been made to classify people into various temperamental types. In early times, these attempts were made in accordance with supposed facts of bodily make-up, for the thinkers of the ancient world believed that the nature of a man was determined by the various constituents of his body and the proportions—different in different people—in which each was present.

One of the best known of these early classifications is that due to Galen, a Greek physician of the second century A.D. He suggested there were four main types of temperament and that each was the result of the preponderance of one, or other, of the four juices which he believed were present in the blood-stream. The four types were the sanguine, the choleric, the melancholic and the phlegmatic. The sanguine type of individual was the optimistic type, with cheerful disposition and of average height and build—for these juices also affected the body as well as the mind—and he was such because he had a surplus of blood. The choleric individual had a surplus of bile and was impatient, emotionally unstable, short, thick-set and blustering. The melancholic individual is long and lean, pessimistic in outlook, not sociable, and is so because he has a surplus of spleen. The phlegmatic individual is of rotund build, happy-go-lucky, does not worry, is slow to action and physically inactive, and all because he has a preponderance of phlegm.

The classification, which was more or less accepted all through the Middle Ages, has now been discarded for various reasons. It is too rigid and clear-cut and the facts of experience disprove it. All of us know, for example, long lean men who are—contrary to this classification—cheerful and humorous. Many of our best comedians have been on the thin side. Another strong argument against this classification with its essential premiss that temperament is determined entirely by bodily factors, is that it would preclude any possibility of change of temperament in an individual, and we know that such changes do occur, even though they may not be common. In any case, such a fixed view is rather materialistic.

Despite these objections, however, there is some truth in the correlation of body make-up and temperament. Changes in our moods may be brought about by changes in our ideas and by increased understanding of what happens to us, that is, psychologically. But temperament changes may also be brought about by physical changes in

the body. A tumour may develop in the supra-renal glands, for instance, and this may stimulate the secretion of more adrenalin than usual. The pouring out of the adrenalin into the blood-stream will, in addition to producing certain physiological effects (raised blood-pressure, raised sugar-content of blood, etc.) also produce a feeling of anxiety. Physical changes of the sort described may be permanent ones, and the result may be a lasting change in outlook, so that a one-time cheerful individual becomes an anxiety-ridden person. Changes of this sort are likely to take place as a result of brain injuries or diseases, especially if these affect the frontal lobes. Damage to the hind part of the brain does not result in any marked temperament or personality change, but damage to the frontal parts does. During the war, as a result of injuries to the brain, many contented people were changed into grumblers, energetic folk into listless and apathetic ones, placid individuals became irritable and good-natured people became easily roused.

The modern view is that differences in personality may depend upon the body chemistry, especially upon the glands and their activity, but not perhaps to the same extent as Galen supposed, nor for the same reasons. It does seem, too, that there is some correlation between temperament and body shape—but, again, not so rigid and close a correlation as Galen supposed—long and lean persons are more likely to be anxious, cool, pedantic, than not; plump folk are more liable to be cheerful, sociable and busy. But there are many exceptions to these rather loose generalisations. It may well be, therefore, that there are factors other than the bodily ones that play a part in producing and moulding temperament, and those factors may be mental ones.

It may seem that an undue amount of space has been devoted to an old and discredited theory, but this has been done for two reasons. First, there is, on the surface, a similarity between Galen's views and those of the more modern workers, but this similarity is more real than

apparent, and there is little or no evidence for a rigid correlation between mental type and body shape or composition. The second reason is that Galen's classification is still being put forward as a modern and accepted view by some writers on popular psychology, including the representatives of a body that runs several schools for children. Of course, the ancient view is slightly disguised, and its originator's name is not mentioned.

Coming closer to our own day; one of the first of the modern psychologists, the American William James, suggested that humans could be classified according to whether they were tough or tender minded. Tough-minded individuals are, as James wrote—"empiricist, sensation-alistic, materialistic, pessimistic, irreligious, fatalistic, pluralistic and sceptical". They are of the matter-of-fact, call a "spade a spade" type. Tender-minded individuals are "rationalistic, intellectualistic, dualistic, optimistic, religious, free-willed, monistic and dogmatic". It will be noted that many persons show characteristics of both these types, that is, most people are of mixed type, probably very few being either wholly of one type or the other.

But the best and most generally accepted classification of temperamental types is that of Carl Jung, the famous Swiss psychologist. He postulates two main types, the extra-verts and the introverts, but suggests that features of both types may be shown by the same individual. It is impossible to find an individual who is approximately 100 per cent of either type. The main characteristics of the two types are shown in the table below:—

THE EXTRAVERT	THE INTROVERT
<ol style="list-style-type: none"> 1. Has interests which are objective or directed outwards, i.e., external to himself. 2. Behaves largely under the influence of expediency and necessity. 	<ol style="list-style-type: none"> 1. Has interests which are subjective or directed inwards, i.e., personal to himself. 2. Behaves largely as the result of moral ideals or principles.

THE EXTRAVERT

3. Adopts an attitude to strangers which is robust, hearty and "hail fellow well met".
4. Tends to under-estimate the difficulties of problems.
5. Is careless of personal appearance and is not fussy over details.
6. Over-compensates for inferiority feelings (see later under *Individual Psychology*).

THE INTROVERT

3. Adopts a cautious or reserved attitude to strangers.
4. Tends to over-estimate the difficulties in any situation.
5. Is fussy and precise about his person and his clothes.
6. Compensates for inferiority feeling by withdrawing from reality into a world of phantasy and imagination of his own devising.

Later, in Part III, some tests are given for grading individuals into one or other of the above types.

We can combine Jung's classification with that based on the factors which are present in mental experiences. It will be recalled that these factors are the affective or feeling, the conative or willing and the cognitive or intellectual. A person who is predominately cognitive will be one who looks for reasons, who reads and thinks, and whose behaviour is much influenced by reason; one who is mainly affective will respond to situations more by feeling than with intellectual inquiry and will be more interested in whether a theory gives satisfaction, than whether it is a logical construction; the person who is mainly conative will be practical in outlook and will want to know if ideas or theories work.

As stated above, we can combine the types; for example, an introvert of the cognitive type will tend to be a theorist, elaborating hypotheses for their own sakes, where-

as an extravert of cognitive type would tend to classify facts, and arrange them, rather than use them as starting points from which to deduce theories. The first man would be the dreamer, living in a world of make-believe and phantasy, whilst the second would be the sort of individual who might edit an encyclopædia, or make a good organiser for some society or party.

It is obviously a help to know the temperamental type of a person with whom one has to deal. It should, however, be noted that although knowledge of a person's type does help in estimating what his possible reactions will be to a given situation, such knowledge, just because it is not exact, will not give absolute certainty. There may be occasions when the man of normal extravert type, that is a frank and open individual, will act in a secretive manner. Introverts can become quite sociable and chatty when their favourite subject is under discussion. Instances such as these are due to the fact that there are other factors than temperament in the mental make-up. It must never be forgotten that the mind is a unity and that, although we may, for purposes of description and discussion, deal with different factors and aspects separately, in practice, the factor or attributes of mind do not function separately but as parts of a whole.

Knowledge of a person's type is also of great use in choosing an individual for a post. A person of marked introvert characteristics would not make a good commercial traveller or hotel receptionist, for in both of those occupations there is need for the affability with strangers that characterises the extravert. Later in this book something more is said about this matter of testing for vocations.

Some interesting research has recently been carried out in the United States on the question of whether individuals tend to be attracted, or otherwise, by those of the same temperamental type as themselves. Popular opinion in this matter is contradictory as is shown by the two sayings: "Opposites attract one another", and "Birds of a

feather flock together". Psychologists of Stanford University School of Medicine investigated 271 married couples, and they found that 231 couples consisted of persons of opposite type, so far as temperament went. The attraction of opposites was well marked in the extravert-introvert typing, for 61 per cent of the couples tested were made up of opposites of those types. A similar result was shown using the other classification, for it was found that 60 per cent of the cognitive type were married to persons of the affective type.

It should be noted that this marked attraction of opposites only applied to temperament, for in many other respects—social background, educational and cultural standards, and financial standing—couples were composed of similar individuals. Dr. Horace Gray suggests that the tests on temperament show that naturally people are attracted by opposites, but that social pressure brings about the union of those with similar social background, education, wealth and so on. He writes, "The predilections for opposites accordingly seem no matter of chance. It must be a matter of unconscious need". That need might be that of preventing marriage becoming irksome as it might well be, if husband and wife were identical in most ways and characteristics. It may be noted here, as a suggestion, that one cause for broken marriages may be the fact the persons concerned were too alike. Social codes and conventions, which do tend to deter people from "marrying out of their class", may, therefore, help, in small measure, to break up the social fabric which they are supposed to maintain.

Section D. *Dispositions.*

A disposition is an inactive attitude or prejudice towards an object, either an abstract or a real one. A man, for example, may have a critical attitude towards religion; that is, he is disposed to be critical when that subject is mentioned. Towards other objects, or subjects, he may not be critically disposed.

We acquire our dispositions from other people, practically unconsciously. Children adopt them because their parents had them. Take, for example, a child brought up in a home where the parents are Methodist by religion, Socialist in politics, tradespeople by occupation; such a child will almost inevitably adopt a disposition of approval towards Methodism, Socialism and trade. At least, he may do so for a time, for it is possible for dispositions to change. When a person grows out of childhood and leaves the family circle, comes under new influences, uses his thinking powers, acquires knowledge and experience, then he may begin to wonder whether he should continue to think and act towards objects in the same way as he did when he was a child. Examples of such changes in a person's dispositions are obvious in many spheres, notably in politics where one often finds a person who was brought up in a home where the party view was one kind, changing to another party.

There is this important point to note about dispositions, they are acquired or adopted unconsciously—they are not taught deliberately to a person—and they do affect a person's behaviour. It is, therefore, very necessary, for parents especially, to see that, not only by precept, but by example, they create an atmosphere wherein socially acceptable dispositions are likely to develop. A child will learn more from the environment unconsciously in this respect, than by any amount of teaching. It would be little use, for instance, to lecture a child on the value and virtues of temperance, in a home to which father returns drunk each evening.

A disposition is an inactive attitude. What is an attitude?

Section E. *Attitudes.*

An attitude is a tendency or inclination to act towards an object in a certain way, a way that depends upon a person's knowledge of the object. A man who knows that a lion is a dangerous animal, will have a certain attitude

towards the animal, whereas a child who was seeing a lion for the first time would have a very different attitude towards it. The uneducated person's attitude towards a thunderstorm may be one of fear, whereas the attitude of an educated person to the same object would be different, because he would know something of the "mechanics" of a thunderstorm and would know, for instance, that one need not be afraid of thunder, for it is harmless despite its awesome sound.

Attitudes are learned. They become built up and altered as one becomes acquainted with the object towards which the attitude is directed. The beginner, seated at the wheel of a car, has an attitude of fear, maybe, or doubt, but after a longer or shorter period of driving practice, that fear is replaced by an attitude of confidence. The old saying "Familiarity breeds contempt", may not be quite true, but it does contain some truth. One's attitude, when first asked to perform in public—say, make a speech—will be very different from the attitude that is developed after much practice at so doing. Since attitudes are learned, it is clear that the attitude of one person towards a given object, will be different from that of another person, since the two people may have had different opportunities of becoming acquainted with the object. I know nothing about some strange machine, then my attitude will be one of curiosity, whereas the attitude of the man who uses it every day will be that of familiarity, maybe of boredom, towards it. A person's attitude towards an object may change—since an attitude is learned, and learning is, or should be, progressive. An attitude is active, or may be.

When an attitude is active, it is sometimes termed a *set*. Just as a batsman becomes set in his crease, when preparing to receive the bowling, so we prepare for appropriate action, when we know we are going to encounter an object towards which we have a definite attitude. Of course, the activity may not be of the motor kind, for the response to the object may take the form of thinking or

talking about it. From the point of view of the individual with the attitude, the attitude may be regarded as a feeling rather than an activity.

Section F. *Sentiments.*

When an attitude is strong, it is termed, by some psychologists, a sentiment. A sentiment is a learned drive or urge to action, a strong attitude or feeling, towards an object, which is built up as a result of one's experience of that object. In time there is a tendency for the sentiments to govern the emotions. The truth of this is borne out when we remember that love and hate, patriotism and ambition, are sentiments. Everybody is familiar with the fact that one's emotions and behaviour towards an object depend very much on whether one loves or hates it. A person will behave very differently in regard to an affront to his own country, flag, or institution, than he will to a similar affront offered to another country or flag. Such a difference is due to the sentiment of patriotism.

The sentiments that we possess are among the more powerful motives to action that we have; stronger perhaps, than any, other than the instinctive urges.

Even small children have sentiments, for example, love towards the mother, that is, a strong attitude towards her which is built up because she provides what the infant wants—food, warmth, comfort, etc. By the way, there is some misunderstanding on this matter. A mother, for example, will often fret if her young child has to leave her because she thinks that the child will be unhappy away from her. It is more likely that the fretting is due to her not having the child, for there is little need to worry about the child, since young children will be quite happy with anyone so long as they are being looked after properly.

During the war years, many evacuated children were quite happy with their foster-parents—in some cases, happier than with their real parents, for they were better looked after. The result was that a sentiment of love towards the foster-parents was built up, which became, in

some cases, stronger than that which the child had towards its real parents. Some of you probably know of cases where a grandparent has brought up a child and a similar sentiment has been built up. Young children are mainly concerned with the satisfaction of their immediate and creature wants, and so long as that satisfaction is provided they are not unduly fussy about who provides it.

The building up of a sentiment results in an organisation or directing of the emotions. Let us suppose, for example, that a person has a sentiment of patriotism for his country, then when that country is in danger, there will be a feeling of fear, a desire to help and defend it; if it were invaded or harmed, there would be sorrow; if it were praised, there would be pleasure.

The object towards which a sentiment is directed may be concrete or abstract, personal or not personal—examples are parents, children, country, county, home, peace, justice, truth, etc. The sentiment is built up over a long period through constant association with the object. Now, the object with which we are most and longest in contact is the self, so that the most important of the many sentiments a person may possess, is the self-sentiment. The self or ego-sentiment is what we think of ourselves; it may not, of course, be what the self really is, but what the person thinks he is. It must be clear that the idea that a person has of himself must have a very strong influence on his behaviour. If a person, for example, grows up believing that he is brave then he will be less afraid of dangerous situations later in life. It does seem that the idea one has of oneself—the ego-sentiment—is formed, at least in essentials, at quite an early age, so once again we have to note the importance of early training. If a small child is always being told that he is a liar he will become one, and so on.

Section G. *Interests and purposes.*

There is yet another sort of attitude that deserves mention, namely, that of interest. This is an attitude that

leads one to participate in whatever arouses the interest, or to take notice of it. It is, as stated in the earlier sections on Observation and Memory, of prime importance, for one can easily notice and learn anything in which one is interested. A person's interests are probably connected with his ego-instinct, that is, with his desire to show off. Proof of this is afforded by the fact that a person tends to be interested in those activities in which he is specially capable. A person will be interested in mathematics, for instance, because he has found out that calculating and the manipulating of figures comes easily to him; another may be interested in music because he has just those vocal organs which enable him to produce especially tuneful noises; another is interested in painting or sculpture because he has a well developed creative instinct and because he possesses the necessary manual dexterity.

Interest can be deliberately cultivated if necessary. It is usually possible to find some aspect of a subject or occupation which links up with something that one is already interested in. A personal example will illustrate. At school, I disliked history and, therefore, found it difficult to learn. I did and do love my county of Gloucester, so when later on I became interested in her past as well as her present, I found the link which made general history interesting, for I found one could not really understand the history of Gloucestershire without knowing something about English history as a whole.

And now, finally, for purposes. Purpose is a word usually used to designate any activity which is directed towards a definite or specific end, the realisation of a definite goal, but in psychological literature it is used to denote activities in which the individual has some idea of the end aimed at. This implies memory since the outcome of an act can only be foreseen by one who has had previous experience of that act, or has heard of others performing it.

A person may have an idea of a desirable state of affairs—"I'd like to have a fur coat", or "I'd be happy if I had a house"—but such is only a wish until he goes on

to say "I'll get it", then it becomes a purpose; that shows that a purpose is consciously acquired, it is an attitude that is deliberately adopted. To have a purpose is rather like shooting at a target, for you take aim, you press the trigger, you watch for the result; you take a certain path to a desired end, the path that you believe will lead you there.

A purpose differs from the other attitudes we have mentioned in this respect, that it has a variable time-span; the purposes of children are usually short-term ones—their activities can be very purposive for a short time, but they soon change their direction—the purposes of adults may be short-term or long-term. A person may have a purpose whose realisation will take months, even years, for example, taking a degree, or obtaining a certain position in his occupation. If the purpose is firmly held then there will be a focusing of all the mental powers on the attainment of the end in view, a focusing which gives the appearance, at times, of heightened mental powers. To have no purpose in life leads to dissipation of energy and aimlessness, just living from day to day, taking things as they come, a *laissez-faire* attitude.

Purposes are specific attitudes; some are very limited in their scope, others are wider. Much, in fact, most of human behaviour is purposive—either long or short term—and is directed to definite and clearly defined ends. These ends may be formulated precisely before setting out on their attainment in words, in mental images, in drawings and plans, blue-prints and maps.

PART II—THEORETICAL

CHAPTER V

THE STRUCTURE OF THE MIND

It is perhaps necessary to warn the reader that the use of the word "structure" in the above chapter heading does not mean that the mind is a material thing. We do talk about structure in a material sense but we also use the word, as we do many others, in a metaphorical sense as well. We often talk, for instance, about the structure of society, meaning thereby its division into classes or occupations. Yet there is no material thing termed society. So, when we use the word "structure" in relation to the mind, we are using it to describe the way in which it is possible (at least in theory and for purposes of discussion) for the mind to be divided into various levels or phases.

The fact that we can bring back into consciousness, memories of past events, suggests that there is some level, or part, of the mind in which memories are retained—or "stored"—ready to be produced when needed.

There have been several theories about the way in which the mind is differentiated. Although most of these are now discarded, it may be useful to say just a little about one or two of them, since reference to them is still found in psychological literature. One of the earliest theories regarded the mind as a unity, made up of a number of special faculties, such as intelligence, imagination, memory, will and so on. This was the view of the faculty school, which dates back to the Greek philosopher, Plato. He argued that the soul, or psyche, was made up of three parts—at least, potentially. In the lowest type of men, who included the greater majority, the dominant part was the appetitive or emotional part (members of this group cared only for material things), in the next

highest and smaller group, the emotional part, whilst still present, was controlled by the spirited part (members of this group were the warrior type); higher still was the smallest class of all, composed of men in whom were present the emotional and spirited elements, together with the highest development of mind, the rational which controlled the others. Members of this latter class were the philosophers, and they were few in number.

This faculty theory has now been abandoned for various reasons, not least that it does not allow for the unity and continuity of mental life. There is a tendency to think of the mind as an active unit, which functions in different ways at different times. Those who hold this view would urge that humans are impelled to action by innate drives, or urges (the instincts) and that these impulses may be expressed in behaviour, which we can call instinctive on occasion, or rational on others. To take an illustration—we are impelled to self-preservation. Well, we may under one set of circumstances say, when we see a bull in a field, run for the gate—such an action is almost automatic. On the other hand, we may do some perfectly rational action like putting so much money in the savings bank each week. Such behaviour is only another way of expressing the impulse to self-preservation—"preparing for a rainy day".

Those who adopt the materialistic explanation of mind, think of the mind as a collection of registered sensations, experiences recorded in the form of actual memory-traces, or modifications of brain-structure. The so-called mind is, on this view, regarded rather as a sort of "penny-in-the-slot" machine. Stimulus A produces reaction B, because that sequential habit has been built up by experience. There are, however, many arguments against such a view which, in effect, equates mind and brain.

Most people feel that mind is not something material, that it is different from the brain which is its instrument, that it is not something we can examine with scalpel and microscope, as we can the actual brain. But even though

the mind is non-material we may be able to arrive at some idea of it and its workings.

The prevalent view is that we can postulate three levels, or spheres, of mind or mental activity. Such a view seems to do justice to the facts. It is important to remember that, just as in society, one class grades insensibly into another, so in the case of the mind, one level is not sharply marked off from another. For convenience in practice, we draw arbitrary lines between the classes or groups in society—we say, for instance, that a person is legally an adult at twenty-one, or qualifies for an old-age pension at sixty-five. So, in the case of the mind. For purposes of description and discussion we arbitrarily define boundaries which do not, in fact, exist. In actuality, the various levels grade one into the other. The three levels referred to are the conscious, the sub-conscious or pre-conscious and the unconscious. Something must now be said about each of these.

CONSCIOUSNESS

Man has the capacity of knowing much that goes on in his mind ; he is aware of what he is thinking—that is what is meant by consciousness. When we are attending to something, either thinking of it or perceiving it, then we are aware of it, conscious of it. It is true to say that at any one moment we are aware of only one or two ideas or concepts. Of course, those ideas may be replaced, a moment later, by other ideas. The conscious level of mind is that of which we are aware!

There are, however, what may be termed two areas or zones of awareness—the focal and the marginal. The focal zone is that part of consciousness which is concentrated on some one point, or concept, whilst the marginal zone includes other ideas or objects ; for example, the idea in the focal zone of my consciousness at this moment is the delivery of these words, yet at the same time there is in the marginal zone of my consciousness a “more or less”

awareness of other things. And, as we saw when discussing perception, one or other of those other things may break into the focal area, and disturb my concentration—if loud noises or bright lights, for example, start sounding or flashing, that might happen.

What we mean by concentration is just what the word implies, a narrowing-down or reduction of the zone of conscious awareness to the least number of ideas. Consciousness may be compared to a searchlight—the beam can be widened and illuminate a large area, but the illumination will be relatively poor in that case; or the beam may be narrowed so that it only picks out a very small area, in which case, that area will be brightly lit. That is what occurs in concentrating; we attend very closely to one idea rather than cursorily to several things. To concentrate is not always easy, but two practical tips are worth noting, namely, first it is far easier to concentrate on something in which one is interested (you all know how you can “stick at” a subject you are keen on, and how swiftly time passes when you are doing what you like doing—the time passed quickly, therefore, in concentrating on whatever it was, you ignored the time); secondly, it is easier to concentrate in the absence of distractions, such as loud or irregular noises, etc.—that is we need to reduce the sensory stimuli that may affect the marginal zone. It is for this reason that some people find they can listen better with their eyes shut; it is partly for this reason that the lights are dimmed in the theatre during performances. Concentration can, however, be improved by practice, and it is useful these days to learn to concentrate even under adverse circumstances.

There is some reason for believing that the development of our capacity for conscious thought is bound up with the development of speech, for we think, when we think consciously, in symbols (pictures) or words—in fact all clear thinking, certainly all rational thinking—as opposed to imagination—is verbal thinking. We have earlier noted that many people talk their thinking.

We usually think of conscious thought as being responsible for making plans, for working out ways and means of carrying out our desires and wishes, that is, we hold that conscious thought prepares the way for action. This belief naturally follows from the fondly held one that we are rational beings, and that we are aware, not only of our actions, but why we do them. Unfortunately, modern psychology does not agree with popular belief. Research has shown that conscious thought does not play anything like the decisive part it was once thought to do.

There are many things we do of which we are fully aware or conscious—we know that we do them, but we do not always know why we do them—that is, if we are really honest with ourselves. We may, it is true, as previously stated, give apparently adequate reasons for having done the actions, if we are questioned, but those reasons were thought up after the actions, in order to justify our doing them. Our actions, or certain of them, may show a bias or prejudice, of which we may not be aware even though it is obvious to other people. We may have, therefore, tendencies and motives leading us to conscious action, and yet we may be unconscious or unaware of those tendencies and motives. As a matter of fact, we all have such.

In other words, the conscious part of the mind is not the whole mind, and it does not account for all our behaviour—far from it—nor is it the only part of the mind involved in planning and thinking in general. It has become clear that conscious thought is connected with certain parts of the brain—forethought with the cortex of the frontal lobes, for example—but there are many other brain (mental) activities going on of which we are unaware. Conscious thought is only one of the many functions of the brain. Sense-impressions of certain sorts reach the appropriate cortical areas of the brain, and set reflex processes in being, with the result, that what may almost be termed automatic action of part of the body, ensues, and yet we may be unaware of these processes.

It has been said that "There is no such entity as consciousness—in health we are, from moment to moment, differently conscious". There is a good deal to be said for this view, for we all know that there are degrees, or differences of consciousness. There is the big change from unconsciousness to consciousness which occurs when we wake up. There are, however, smaller changes that are taking place without our knowledge, because consciousness is a subjective experience and as with all experiences, its intensity can vary. When we first rise and start getting breakfast, we may be conscious but not very keenly so, and may, therefore, let the coffee boil over, or be rather clumsy in our movements. As a matter of fact, people vary considerably in the rate at which they become fully conscious. A man who is living under dangerous conditions, for example, such as an explorer, may train himself to wake up alertly.

The changes in intensity of consciousness which occur during waking hours may be brought about by physical conditions of the body. A person tends to be less keenly conscious—that is, inattentive and irritable—when he is hungry. This is because the body's food stocks, especially of sugar, have been used up.

We have noted in an earlier chapter, that electrical activity takes place on the surface of the brain. The frequency of the waves produced by this activity can be measured by suitable recording apparatus. It is possible, by injecting insulin into the blood stream of a subject, to lower the sugar-content of the blood. When such is done, it is noticed that the electric waves produced are slower (5 to 6 cycles per second) than when the sugar content is normal. Reduction of sugar content, either by injection, or lack of food, produces a change in the degree of consciousness.

Another blood change which affects consciousness is that of alteration in alkalinity. Continuous rapid breathing will bring about the removal of carbonic acid from the

blood stream. If the rapid breathing is continued for a time then the alkalinity of the blood stream will reach a point when the brain becomes affected and the person becomes dizzy or may even faint. It is well known that certain Yogi in India practise various breathing exercises and adopt certain postures in order to produce changes of consciousness, especially the attainment of a semi-mystic state.

This close connection between consciousness and the chemistry of the blood—and hence of the brain—is made use of in using anæsthetics, for, as is known, the administration of certain chemicals into the body, either by inhalation or injection, will bring about a temporary banishment of consciousness. Consciousness thus depends on the activity—chemical and electrical—of the brain and that depends on its being nourished by blood of the right quality.

I have said that consciousness is a subjective experience—that is so, but there are effects of a person's being conscious which are objective, and can be observed by an outsider. Those effects are complexity and purposiveness of behaviour. A person who is semi-conscious, or even unconscious, will often do all sorts of things, behave in certain ways, but such behaviour will be simple, instinctive reactions to physical stimuli and so on. Observations of a person's behaviour is thus a means of telling the degree of his consciousness.

But there is a region of mind or personality which lies outside consciousness—to use an analogy, the mind may be likened to an iceberg, one ninth only shows above water—it was the work of Freud and others of his psycho-analytic school which demonstrated so clearly this fact. Freud found that certain facts and ideas drop out of consciousness—but they continue to work underground. These ideas are repressed, but they remain active, and they continue to influence conduct.

THE SUB-CONSCIOUS OR PRE-CONSCIOUS

Immediately below the conscious level of the mind there is another level, or sphere, which is termed the sub-conscious. It is that sphere, or zone, in which lie those thoughts and memories which although outside consciousness, can yet be easily recalled or brought into consciousness. This sphere is thus not sharply marked off from consciousness, but the two merge imperceptibly. Some thoughts and memories are more easily recalled than others. If we imagine, for the sake of illustration, consciousness as a circle, then we can think of subconsciousness as a larger circle concentric with that of consciousness and some thoughts and memories will be nearer to the inner circle than others; these will be the ones more easily recalled. Those that lie more distant will be more difficult to recall, and there will be some that cannot be recalled. It must be remembered that we are speaking of "distance" more to illustrate, and the word in connection with ideas or memories does not, in fact, relate to time or space. For example, an experience which happened to us many years ago, may be much more easily recalled than one which happened only last week, especially if the latter were an unpleasant one and the former a pleasant one.

But generally speaking, those memories which are fairly easily recalled are those of comparatively recent events and experiences. There may, however, be special reasons, such as those just cited above, which have caused the memory of recent experiences to be repressed, or "pushed-down" into deeper levels of the mind, into, in fact, the unconscious level.

Little more need be said about this sphere or level of mind as it merges, on the one hand, into the consciousness, and on the other into the much more important and interesting level of the unconscious.

THE UNCONSCIOUS

This is, roughly speaking, the sphere of those repressed thoughts, desires and so on which lie underneath normal

consciousness. The unconscious comes into being through repression, and it, therefore, contains those thoughts, desires, wishes, etc., which for some reason or other have been driven out of consciousness. Since the unconscious is characterised by repression, it will obviously include wishes and desires which, in many cases, are irrational, childish and sexual, that is, just those wishes which conventional morality does not allow us to fulfil as and when they occur to us. Later on we shall have occasion to discuss the content of the unconscious in more detail.

Before turning to a consideration in detail of the unconscious, it may be as well to point out that the word is used in several senses. Freud, for example, uses the term in a rather special sense, namely, to cover thoughts repressed from consciousness, and some account must be given later of the Freudian Unconscious. In popular usage, the word "unconscious" means non-mental, as when we speak of a man who has had a head injury, or has been anaesthetised, as unconscious, that is, unaware. In this sense, the word is used to describe a state, rather than an entity. It has to be remembered that the "Unconscious" is not unconscious in the second and popular sense, for much mental activity goes on in it. We may express the situation in this way—psychologists mean, when they use the phrase "the unconscious", a sphere of mind whose content is not identical with that of the conscious.

The Unconscious grades down from the sub-conscious—the two are not sharply marked off from one another. We separate them for convenience of discussion. The Unconscious is the repository of all our remembered experience even though it may not be possible to recall voluntarily, certain past experiences. This is shown by the fact that memories which may be difficult for a patient to bring into consciousness by will, may sometimes be evoked by special techniques, such as free-association (see later, under *Psycho-analysis*) or when the subject is hypnotised. Most people are familiar with the fact that they can recall incidents more easily at some times than at others, for

example, in that half-dreamy state between sleep and complete waking-up.

Incidentally, it may be worth pointing out in this connection that the memories of experiences we had when very young, may not be true memories. One hears, for example, a person say that he remembers doing so-and-so when only two years old. It may well be that what he really remembers is being told at a later age what he did when he was two, but the telling was so long ago that he believes he actually remembers the experience. A personal example will illustrate the point. When I was about three years old, my family moved house. Later, I used to claim that I could remember the move, and how I saw the new house in the distance as, sitting in my perambulator, or "go-car", we turned into the lane that led to it. On analysing the mental picture that was the supposed memory of that experience, I now realise that it was an impossible one, since one cannot see the house from the lane-end. You see, what I had done was to build up a composite memory picture from scenes I had seen, and I then believed the resulting picture was an actual memory-image.

The Unconscious is also the realm of the instincts and emotions and of the wishes and inclinations. All wishes and inclinations which the conscious mind refuses to accept, or act upon because to do so would be unconventional, immoral or just "not done" are retained in the Unconscious even after being suppressed.

There are a number of mental phenomena which can best be explained by postulating the Unconscious, that is a realm, or level, of mind in which thought-processes go on, rather similar in some ways to those that go on at the conscious level. These are:—

a. Finding "ready-made" answers to problems.

Let me illustrate by a personal example. One evening recently I was trying to solve a rather difficult crossword puzzle. After considerable effort I had completed it except for the top right-hand corner where two words—crossing

one another—eluded me. I went to bed. Early next morning, before it was really light I woke up and I had a clear picture of the completed crossword in my "mind's-eye". So vivid was the mental image that I saw every word with its appropriate number. I made a note of the two words I had not been able to think of the night before. When the next issue of the paper came, I was able to check the results, and I found the two words were the correct ones. What had happened? Obviously, my mind had gone on thinking even though I was asleep, that is unconscious (in the sense of being unaware of what was happening). My Unconscious had done the thinking for me.

There are numerous illustrations of this phenomenon. In fact, one can leave problems to the Unconscious, which will do the thinking for one. Perhaps another personal example may be forgiven—after all, one is most familiar with the working of one's own mind, the only mind that is known, directly. Each week I have to give several lectures, each on different subjects. During the previous week, or even earlier, I collect data for these lectures, I read reference books, note facts and figures in magazines and journals, or by listening to others. Then a day or two before any given lecture, I sit down to write out the lectures either in full or in notes. More often than not I find that I just write what comes "into mind", and find that it makes sense, that is, the scattered facts have been sorted out, arranged, deductions made, and conclusions arrived at, in the Unconscious, and the mere act of starting to write brings the whole lecture out in order of argument.

b. Telepathy.

There is good evidence available to show that telepathy does occur, that is, that mind can affect mind at a distance, without the intervention, or use of word or gesture. How is this possible? Well, one theory that has been put forward is this, namely, that the transmission and reception take place at the unconscious level. It has even been

suggested by some that, at the Unconscious level, all minds are one and that individuation only occurs at the conscious level. Our conscious minds are thus like peaks standing out from a low-lying mass that links all the peaks.

c. Hypnotic phenomena.

Under hypnosis, it is claimed that a person may be given an order which has to be carried out at a later date. When the person awakens from the trance state, he will not remember anything about the order yet at the time suggested he will carry out the order, oftentimes to his own surprise, for he may not realise why he is so acting. Delayed commands of this sort find their best explanation on the hypothesis that there is some level of mind below the conscious, in which the command and its contents are retained. Incidentally, such delayed commands and their fulfilment as ordered, indicates that, in the Unconscious, there must be some means of estimating time. This would also seem to be borne out by the ability some persons have of waking at a stated time in the morning.

d. Automatic writing and crystal-gazing.

The claim that certain people do write sensible messages automatically, or see images of real scenes in crystals, is probably best explained, not in terms of some super-normal gift, but in terms of the activity of the Unconscious. What is written, or what is seen, is probably built up of impressions retained in the Unconscious, and brought forth under special conditions.

e. Dual or multiple personality—schizophrenia or split personality.

These states, too, find their best explanation of the hypothesis of an Unconscious. There are individuals who exhibit one personality at one time and another at another time. The well-known example in fiction is that of Dr. Jekyll and Mr. Hyde. The person, in one personality,

gives way to the other personality, so that whilst one personality is in the ascendant, the other is largely or entirely dormant. We are all like this to some extent ; it is only when control is dropped that things become serious.

I know a middle-aged man who is a schizophrenic—for that is the technical name given to persons with dual personality. Most of the time, he carries on with his normal work and life. Then, occasionally, his second personality takes charge. On one occasion, he disappeared from home—there was no apparent reason for his going and his friends knew nothing of where he was for several days. Then came a message from the man to say that he was in a certain town. When a friend went to fetch him he was his normal self again, but claimed to be totally unable to account for why or how he was in that town, or why he had been away from his home for several days.

Now, let us return to the point mentioned above, namely, that the Unconscious is not only a storehouse of memories, but it also preserves mental states, such as wishes, which are still active. Freud maintained that the same mental laws are at work at the unconscious level as at the conscious. The crossword example cited above seems to be proof of this contention. In his book "The Psychopathology of Everyday Life", Freud gives numerous examples to illustrate his thesis. He suggests, for example, that the instantaneous dislikes that a person takes to others, are to be explained in this fashion. The person who takes the dislike may be unconsciously associating the person disliked with some other person, or event, which caused unhappiness in earlier life. Thus linking up, or associating, one thing with another—a process which we are always doing, and which has already been referred to under memory—occurs not only at the conscious, but through it at the unconscious level of mind. It is this which is made use of in one method on investigating the content of the Unconscious (see under *Psychoanalysis*). As will be described later, dreams, too, are illustrative of the working of the Unconscious.

As we shall see later, too, individuals develop certain life-styles, or patterns of behaviour, at an early age. They find that a certain type of behaviour "pays"—a child gains attention, maybe, by screaming, or by feigning illness. The method adopted sets up a pattern in the unconscious. Even when adult the individual may adopt the same attitude as he did when a child. So the child who found screaming paid, may, when adult, be noisy and loud spoken when he feels "out of things". The individual who, as a child, won attention by feigning illness, may, when adult, develop imaginary ailments if faced with a difficult situation. Many ill-balanced individuals simulate illness when they wish to evade responsibility, for example. But more of this is described below.

There are, however, two patterns or mechanisms mainly unconscious, which may be described here. These are rationalisation and projection.

a. Rationalisation.

This is the name given to that mental process by which we try to justify an act, or an opinion, by putting forward arguments which may be true, but are not the real truth, and were certainly not the truth at the time. The well-known fable of the fox and the grapes illustrates this process. The fox was unable to reach the coveted grapes because he could not jump high enough, but in order to cover up his own inability he went away murmuring "They are sour anyway".

We all know individuals who have tried to do a certain job and failed—failed because of their inability, or lack of skill. Yet, how often does one hear such people say that there was something wrong with the materials used? One not infrequently hears a tennis-player blame his racket for his poor game. Or, a person does some action because of an instinctive urge. He is asked why he did it; he is ashamed to admit the real reason but will make up some plausible "reason" for so acting. All of us, if honest with ourselves, are guilty of that sort of thing quite often.

Now, what, in effect, is happening is this—the conscious mind is being deceived, in a sense, into believing something which is really a screen for the real motive, which is considered to be bad, or childish, or derogatory to one's dignity.

b. Projection.

This is a common phenomenon ; it is imputing to others the same motives as one has oneself, or the same desires and opinions. We know how we should feel, for example, in a given situation, so we imagine that another person, in the same situation, would feel in the same way. We do this, not only when dealing with humans, but with animals, too, and so impute to them feelings and desires that, in reality, they probably never feel or wish.

Of course, most men, at least those of similar culture, think and feel in much the same way, but it must be clear, if we consider it, that no two people will react exactly to the same situation, since, as we have noted, response to a given situation will depend, not only on the situation, but on the content of the mind of those facing it ; and no two people can have exactly similar mind contents.

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There is one last point about the unconscious that may be mentioned. Perhaps an individual has, consciously and rationally, rejected belief in a certain idea, that of God, for example. Yet it may be that, unconsciously, he still accepts—perhaps on emotional grounds—the idea. Now, a divergence of this kind within a mind, may give rise to mental trouble since such is often caused by conflict. If a part of the mind is pulling one way, and another part is pulling in an opposite direction, there must be mental strife. Or take another illustration—a man may be strongly attracted towards a certain woman, but because she is someone else's wife and he is a conventional individual, he tries to suppress the emotion he feels. His conscious mind tells him that he is wrong to want the

woman, yet in his unconscious mind the desire persists. Here again is conflict which may lead to mental disturbance, in fact, to a mental breakdown. It is, however, most unlikely to result in trouble if the man recognises the position and faces up to it, instead of repressing it. The jilted suitor who flies off to Africa to shoot lions will suffer no breakdown such as the man may who turns the affair repeatedly over in his mind without finding an answer.

The widely held view that conflict alone is the cause of most of these breakdowns is however quite wrong. There is almost always (except in the unbalanced) a very real or basic cause which frequently comes to the surface through the conflict having arisen and such breakdowns can only be cured—and of course can be completely cured—by the removal of the basic cause of which the conflict is but a symptom. Unfortunately, there are so few doctors who are skilful psychologists (owing to their training—or more correctly, to the lack of it, because they have only recently been taught the subject) and most psychologists know little about treating this difficult type of case.

CHAPTER VI

THEORIES

FREUDIAN THEORY AND PRACTICE

It is in connection with the Unconscious—its formation, contents, and the forces acting in it—that there has been much theorising, and something must now be said about the various theories or, at least, some of them. We begin with the Viennese psychologist, Sigmund Freud, since it was mainly due to him, and his followers, that attention in the West was drawn to the fact that mental life is much wider and deeper than might be supposed from a study of consciousness alone.

Freud began his investigations as a result of treating neurotic and other mentally disturbed patients. He was associated, at first, with another worker, Josef Breuer, who maintained that if one could unearth forgotten ideas or memories the result was often beneficial to the patient, and Freud used this method at first. Then, the latter, began working on his own and eventually developed a new technique, that of psycho-analysis, for this exploration of the Unconscious. So it comes about that two things are associated with the name of Freud, viz., a theory and a therapeutic practice. Although in point of fact, the practice came before the theory, it is better, for descriptive purposes, to start with the theory. Freud's interpretations were rather speculative, in fact sensational and soon attracted a good deal of attention, especially amongst non-psychologists. The result has been that to many the words "Psychology" and "Freudianism" are almost synonymous. It should, however, be remembered that Freud's theory of the Unconscious is a theory, and only one.

amongst several. Many of the details (at least) in his theory, still need further confirmation before it can be accepted. As a matter of fact, some of his own students later differed from him on points of detail, and one or two of them formulated alternative theories, although all agree in the great importance of the sub-conscious and its effects on consciousness.

THE FREUDIAN UNCONSCIOUS

Freud believed the Unconscious to be the realm of mind of which we are unaware and whose contents cannot be voluntarily or spontaneously recalled. He held, however, that these contents may be exhibited in disguised form in dreams, trances, fantasies, hallucinations, or that they may be evoked by special procedures such as psycho-analysis (see below). The Unconscious is a reservoir of memories and a sphere of operation of processes. It may be in conflict, as will be seen, with the conscious. As stated above, Freud evolved his theory as a result of his attempts to study and cure abnormal mental states; it is therefore a theory which is based on practice.

Although we speak of the Unconscious, it must be remembered that the mind works as an entity—the psyche is an entity, a whole, operating in different spheres—and although we may not be aware of what is going on in our own unconscious, what occurs there does affect the conscious and, in fact, our whole behaviour. That is one reason why we can never be quite sure of the true motives of our behaviour, since much of the motivation of conduct is the result of processes and ideas in the Unconscious.

The Unconscious is made up of inherited desires and impulses (instincts) and these impulses are of a very primitive type for they arise either from our inherited instincts or our earliest childhood experiences. Freud—and here is one point where others disagree with him—suggests that the instincts which are strongest, are those which are aroused by other people. He terms such instincts sexual (and it is partly his emphasis on sex which has resulted in

the popular appeal of his writings) but it is to be noted that he uses the word sex in such a wide sense that it might be better, as Sir Cyril Burt has suggested, to substitute the word "personal" instinct. Naturally, the other persons who first arouse our personal instincts and our emotional interests—and these become associated—are our fathers and mothers, and it is our relationship to these, which moulds our psyche and produces lasting effects.

The Freudian theory starts by postulating a creative force in every individual, which impels and drives life. This psychic force or energy seeks discharge, and this discharge is experienced by the ego or conscious self as pleasure, since it is relief of tension. This implies that psychic life is made up of a series of impulses to action, or wishes to act. Freud holds that these impulses or attempts at discharge of psychic energy, aim at fulfilling two great principles—the pleasure-principle and the reality-principle—which may be regarded as two "instincts" or primal drives. The pleasure-principle is the more fundamental and strong—it is the primary form of mental activity and is present from the beginning of life. It is well shown in the infant who seeks immediate gratification of bodily needs, warmth, food, etc. It arises from, in fact is, the ego-instinct and is, therefore, essentially selfish. The existence of this principle, or urge, in the infant is shown in the way it is aware only of its own immediate desires—for food, for warmth, for comfort, for company—and their immediate fulfilment. These are direct manifestations of the pleasure-principle. At later stages in individual development, the principle is shown in indirect and disguised form, for it is not always possible or desirable for our primitive cravings to be shown or satisfied directly. The primitive impulses—to show fear or anger, to satisfy sexual inclinations—are often in conflict with our moral or social codes and conventions. These latter have been evolved in part, at least, to make community life possible. Although the expression of the pleasure-principle is thus adapted and modified, no amount of

civilisation can destroy it or its power. It is always there, as an essential, continuing, and dynamic factor in our mental make-up.

The pleasure-principle is always in conflict with the reality-principle, which has for its function the adaptation of the individual to reality, that is, to things as they are and not as the ego would have them be. Many desires and wishes which the pleasure-principle would have expressed, cannot be so expressed because custom and conventions forbid—and we must adapt if we would survive—so as these crude and primitive impulses arise, they are dealt with in a summary fashion. Conscious awareness of unfulfilled desire may bring unhappiness and strain, therefore these impulses are apt to be pushed out of consciousness and are, as it were, to use the technical term, repressed, but they are not destroyed; they still persist in the unconscious. That is how the content of the unconscious gets built up.

From birth onwards, the individual is constantly repressing desires, and these repressed desires and impulses may "fester" below the surface of consciousness, and continue to affect our conscious life. In the unconscious, these desires and impulses, these repressed thoughts, become linked with others. They acquire emotional associations, sometimes of a "painful" nature (hence their repression). These "painful" associations, with their emotions, form what are called complexes.

Freud supposed that the constant endeavour of the individual to adapt himself to his environment, this effort to suppress his primitive impulses and actions, has led to the setting up of a barrier between the conscious and the unconscious; and he terms this barrier the censor. This name indicates its function, namely to keep watch on and inhibit the primitive and infantile aspects of the mind. This censor develops as the individual develops—in infancy, the individual's behaviour shows little sign that it recognises the existence of social conventions and codes; in the adult, there is a greater recognition of such. But

even in the adult the censorship is never complete. The unconscious emerges in various ways—in dreams and fantasies, in criminality, in slips of pen and tongue, in forgetfulness. "The Colonel's lady and Judy O'Grady are sisters under their skin."

Freud lists many examples of forgetfulness which could be shown, on analysis, to be due to painful associations connected with the person or things forgotten. In fact, much abnormal behaviour and many irrational fears or dislikes are caused in the same way. A few illustrations may help. A certain man had a dislike of the colour purple, a dislike amounting to aversion, a dislike which was transferred to anyone wearing the colour or an object of that colour. Analysis showed that, as a child, he was regularly given some "grey powder"—these were of a nasty taste, so they were powdered and placed in a spoon which was then filled with jam (usually raspberry). The boy, however, licked the jam off the top, only to find a purplish mass remaining and this he had, perforce, to eat—it had a very nasty taste; so was built up the association of purple and distaste. Later, in adult life when the conscious mind had "forgotten" the connection, the unconscious complex still affected his consciousness in the dislike of purple, although, until the analysis was done, he was unable to explain his irrational dislike of the colour.

Here is an example given by Freud—a certain woman always felt miserable, in fact she would weep, whenever she heard a certain tune. She could not understand or give any explanation for her behaviour. Analysis showed that as a child she had attended a small village school; it was the custom for this tune to be played on the school piano as the children formed up to march back into school after play—the mistress used to stand at the door with a cane, this was used to prod or strike any girls who were slow or late in assembling. The woman in question was usually one of the last, and so "got the cane" frequently. This was a painful memory, and so was repressed, but in the unconscious, the painful memory was associated

with the tune. The result, later, was as stated above.

That is, the censor does let through ideas from the unconscious if those ideas are disguised or in symbolic form. Under certain conditions, too, the censorship fails to function properly; for example, when a person is anaesthetized or drunk, he or she will often use words and oaths which would not be used during consciousness. Alcohol thus weakens or destroys the inhibitions; it is for that reason that one can usually believe the truth of what a person says when he is drunk, rather than when he is sober (for when sober, one tends to respect the codes and conventions more); it is for that reason that a little alcohol does help in promoting gaiety at a party, for it breaks down some of the artificiality which characterises the behaviour of many people. It is for that reason that people vary under alcoholic influence, vary as between one another and vary from their ordinary behaviour, for the breaking down of inhibitions serves to remove the uniformity of behaviour imposed by conventions, and reveals more of the real person underneath the artificially and deliberately created social veneer.

REPRESSION

From birth we are engaged in a process of adjustment—adjustment between the pleasure-principle, and the reality-principle—between, on the one hand, the impulses and desires connected with the self, and on the other hand, the world of men and things as it actually is. We have to learn to adapt ourselves and that is not easy—the primitive instincts—those connected with fear, sex, anger, acquisition, etc.—cannot, because of our civilised codes and conventions, be expressed in the way we would like to express them. To do so involves punishment or reprimand, that is, displeasure, so they become repressed. As soon as these cruder impulses arise in our minds we repress them—we pretend that we are not afraid, even though we may be; we deny that we want to steal or hurt, even though we, in fact, do.

But although we repress, we do not destroy these impulses, and they persist in the unconscious, and eventually seek discharge in some indirect way, for until they achieve some form of discharge, there is uncomfortable tension. They, that is these impulses and their associated emotions, form the complexes referred to above. The neurotic person is the one whose life is mainly controlled, even though he may be unaware of it, by these complexes. Freud held that all mentally abnormal people, from the completely insane down to the ordinary individual with one or two obsessions (such as the purple-hating one above) are governed, in their thinking and actions, by such complexes, which it is the business of psycho-analysis to discover.

This process of adaptation is very difficult, and would be nearly impossible were it not that individuals are capable of sublimation (see previous chapter). Freud suggests, for example, that much of what we term Art is sublimation of the ego-centric impulses, and that Art originates in man's need to create illusions to protect him against the unbearable recognition of things as they really are. In Art forms man may actualize the ideas which he has of things, ideas which do not correspond to any actual thing—all women fall short, for example, of the ideal a man envisages, but he can create an embodiment of that ideal in paint or stone.

The adjustment between the two great principles is most satisfactory, when the psychic energy that accompanies the primitive impulses and desires can find an outlet. For example, the exhibitionist-impulse may find a satisfactory outlet in public-speaking, dramatic work, and so on. A factor that makes the adjustment in question difficult, is the fact that the civilising (in the convention accepting) process for the individual is very rapid. The infant has to develop from the self-centred stage (in which he is "lord of creation" and every want supplied) quite quickly into a member of society. That means, he must learn self-control and self-dependence in a short time.

If, for various reasons, sublimation does not give the psychic energies adequate outlets, then they will find other means—indirect ones—of discharge. These may take the form of anti-social conduct (one way of showing one is different); of "bad habits"; or one or other of the psychoneuroses (obsessions, compulsive feelings, hysteria, etc.).

FREUD'S SEXUAL THEORY

One of the most criticised parts of Freud's Theory of the Unconscious is that in which he stresses the important part that sex plays in mental life, even at very early stages of the individual's development. He held that the primitive trends or impulses are all sexual in origin.

It is pertinent to note that when Freud uses the word "sex" he uses it with a wider meaning than the word usually has in ordinary use. He includes under the word, not only those functions and processes which are usually deemed sexual, but also many other attitudes towards others, which may be better termed "personal relationships".

This "sexual theory" is well illustrated in the parent-child relation, a relationship which is—on any view—of vital importance in the development of the growing individual. To the male infant, beginning life, the mother stands for all that the female sex can mean. And because all mental life is an entity, this child-love for the mother is basically the same in kind as that love of adolescence or adulthood, that is called sex-love. This identification occurs because the sexual wishes and impulses exist from the very earliest period of life, although in a much modified form.

We can see, for example, in the young child a desire to investigate the mother's body, and an interest in it; a wish for exclusive possession of her, and a consequent jealousy of any other (for example the father) who has claims upon her. These same desires and wishes are characteristic of adult sex-love. The infantile and modified love for the mother leads to a feeling of hostility towards

the male parent (in case of the male child and *vice versa* with the female). Obviously that hostility must be repressed from consciousness, because it is deemed wrong to show hatred of the father—punishment and reprimand might ensue. But, although driven out of consciousness, the hostility persists in the unconscious where it forms a complex—the Oedipus complex; so called because in it we have the situation set out in the Oedipus myth which tells how Oedipus, a legendary king of Thebes, who never knew his father and mother (for he was brought up by a king of Corinth) killed the former in a quarrel and married the latter. After four children had been born, the truth was discovered, and Oedipus blinded himself, and Jocasta, his mother, committed suicide.

This complex may show itself on the conscious level in rebellion against authority on the part of the child. This occurs by transference. The male parent represents authority, and the hostility against authority is the way in which hostility against the father is expressed.

The existence of the Oedipus complex tends to set up conflict in the mind since there is a clash between the promptings of this complex, on the one hand, and, on the other, the feelings of gratitude and thankfulness which the behaviour of the normal father produce. And, too, there is the constant teaching to love and honour one's parents. The conscious mind is there opposed to the unconscious. The unconscious conflicts caused by this problem often give rise to neuroticism in later life.

DREAMS

We have already noted that the unconscious shows itself in such abnormal phenomena as hysteria, hallucination and other psycho-neuroses. There is, however, another and more common way in which that showing is done, namely in dreams. Freud has put forward a theory of dreams which merits some short account. He calls a dream "The Guardian of Sleep", for he holds that dreams represent wish-fulfilment, that is, in dreams the worries

and thoughts which might otherwise disturb our sleep are kept from doing so because the mind imagines that things are the opposite of what they really are. We do the things we wanted to, and could not, and so on. This applies to day dreams too.

It appears that when we are asleep, the censorship is relaxed, and unconscious wishes and desires can take the field. We all know that, in waking life, we often have urges to do certain things but cannot do them, either because they are unconventional, "not done", indecent or immoral, or because we have not the ability or opportunity to do them. In dreams we may, however, "wash off" the desire or urge, not always in a decent way, but perhaps in some symbolic manner—so symbolic that we may not even realise that the dreams represented a wish-fulfilment.

To put it a slightly different way—dreams express unfulfilled ego-centric wishes, that is, they express the activity of the pleasure-principle, and give opportunities for the realisation of wishes, which are deemed pleasureable by the primitive self, but wishes which are incompatible with the reality-principle. These wishes are symbolised and disguised, and because of this, it is not always easy to understand the true meanings of the dreams which express these wishes. This symbolism is of two types—there are symbols which are common to all, for example, snake and dagger as phallic symbols (also in folk-lore and myths, the same universal symbolism appears) and symbols which appertain to the individual.

The following example will illustrate individual symbolism in a dream. A certain woman frequently had this dream. She was being interviewed by a doctor for head trouble; as the interview proceeded his eyes which were looking steadfastly at her, gradually turned to bright lights, like car headlamps, probing into her brain. The explanation—she was being wooed by a man who was constantly asking her if she loved him, always asking intimate questions.

In dreams, we not only symbolise, and that is an unconscious process, but we condense (that is, fuse separate items into a whole), displace (that is transfer emotions associated with one person or object to another person or object) and dramatise (the commonest form of a dream is looking at vivid pictures; the dreamer is rather like a visitor to a cinema). Photos, for example, become real living people.

These mechanisms disguise the latent dream content—this act of self-deception is committed in order to evade the censorship.

Dreams are always ego-centric, and aim at fulfilling wishes. The dreamer is usually the principal character in his dreams. They contain material vital to, and linked with, the dreamer's deepest impulses, and often reveal his unconscious wishes.

Dreams therefore afford information about the underlying unconscious wishes, and impulses, that have guided and influenced us from early childhood—they usually relate to the past and do not foretell the future.

PSYCHO-ANALYSIS

Neurosis and dreams are ways in which the unconscious reveals itself, but there is another way in which its contents can be sometimes learned, namely by exploration. Such is the purpose of the technique associated with the name of Freud, namely psycho-analysis. This is, as the phrase implies, an analysis of the psyche or mind, an unravelling of the "knots" or complexes. The aim of the technique is to set free the unconscious, with a view to discovering and understanding the buried complexes that exist therein.

The method which Freud developed is that of free-association. The analyst starts with some odd item in the patient's behaviour or some striking or recurrent image in his dreams. The patient is then told to think about the particular item or image, and to say whatever comes

into his mind, as a result of that thinking. The patient is asked to relax physically and mentally, and just think aloud, saying whatever comes to mind, even if it seems illogical, tactless, indecent or immoral. In other words, the patient is told to eliminate the conscious conventional modes and matter of thought, so far as is possible, and allow the unconscious to take charge.

Obviously, such a procedure requires a *rapport* between analyst and patient, for the latter must feel trust and confidence in the former. The analyst must be tactful, and must refrain from any attitude or words of censure or disapproval at what he hears. It is clear, that if a person is to reveal his inner self to another, he must feel confidence in that other, and a close and emotional relationship will be set up.

Such treatment takes time, often a long time, especially if the patient is of a highly cultured type, because in such a case there will be an increased tendency to conceal thoughts that may be considered indecent or immoral. (The trouble is that so much of conventional civilisation seems to suggest that impulses and instincts which are perfectly natural and innate, are immoral and should not be talked about.) Our educators sometimes forget that to accept the existence of a fact, does not mean that one has pleasure in it, or condones it, or is willing to let it rule one's life. If the existence of such primitive instincts were openly accepted, and regarded as natural, then sublimation would be possible—the psychic energies associated with them could be safely canalised—and far less harm would be done than is now, by the repression consequent on regarding normal natural impulses as ugly or indecent. In this connection it is worth noting that neurosis is rarely, if ever, seen amongst primitive peoples.

Freudian psycho-analysis differs from other techniques in which there is a "patient-doctor" relationship, in that the analyst (doctor) does not pretend to effect or carry out any cure, neither does he give instructions concerning any regime, diet or medicine. What he seeks to do

is to make the patient discover for himself his own psyche, especially that part which is unconscious. For the Freudian holds that if buried complexes can be discovered and understood by the patient, then the mere fact that the patient becomes aware of what was causing his neurosis is often enough to resolve that neurosis, especially when it is found that the complexes are of an infantile and selfish nature.

The unveiling of the buried complexes is brought about by free association, but that is not a simple process, for there may be opposition from the patient—who is afraid what the analysis will reveal—or, as Freud pointed out, the patient may try to prevent analysis, because he clings unconsciously to his neurosis which fulfils his unconscious desires. Another important factor in this analysis is that of transference. During the progress of the analysis, the calling to mind of certain persons and images by free association, revives a whole series of earlier experiences, together with the emotional reactions that were associated with them. There is a tendency, so Freudians claim, to direct these feelings and emotions towards the analyst. Transference is deemed to be essential in helping the patient to discover his unconscious, but it can create delicate situations for the analyst.

It must be remembered that so far we have been writing of Freudian analytics, for there are those who do not accept the Freudian view about curing neurosis, and who hold that it is doubtful whether many permanent cures are effected by merely unearthing buried complexes and explaining them to the patient. Release of emotions and transference of emotions are not enough, in themselves, to effect a cure. There must be something else. Other types of psychologists would argue that one has to find the cause of the neurosis—the original cause, a conflict of wishes or desires, maybe—and then explain those causes to the patient who should be shown how he can, by his own efforts and thought, find a solution. You see, the patient may not be aware that he has a problem to solve, all

that he is aware of is the result of the conflict or complex. Of course, there are a few cases in which a genuine and lasting cure has been brought about by psycho-analysis, but it may well be that such cures are due to faith in the treatment.

So far, we have talked as though psycho-analysis was purely a technique, but the word is also used to describe the body of doctrine evolved by those who have followed Freud, and is therefore almost a synonym for Freudianism or neo-Freudianism. There is a considerable body of literature on the subject, and it may therefore not be amiss to note that psycho-analysts have evolved a rather formidable technical vocabulary, using particular terms for the parts or aspects of the mind. Freud divided the mind into three parts namely:—

the Id—the unconscious reservoir of instincts, the most primitive aspect or part of mind, and the primary source of psychic energy ;

the Ego—the conscious or potentially conscious part of the mind, the part that interprets and co-ordinates repressions reaching the brain from outside or inside our bodies, the part that we recognise as "I" ;

the Super-Ego—the faculty of moral control, derived in part from the incorporation into our minds of moral precepts from others, and partly from other unconscious sources.

Three other terms in frequent use are:—

Libido—the sexual impulse (deemed all important by Freud) ;

Ego-ideal—this is a better and more worthy image of the ego, which we construct as we become aware of the physical, mental and moral limitations of the real self ;

Narcissism—self-love ; for we love ourselves no less than others.

with adult education know how few, relatively, are willing to avail themselves of the opportunities for continued education. Now the attitude of mind which gives rise to these conditions must have been brought about as a result of the formal education in schools—it is not a natural attitude, since curiosity—the driving force behind voluntary learning—is innate in man.

This stifling of curiosity is brought about mainly as a result of what may be termed the "examination-complexes". This takes two forms. There is the undoubted fact that success in school examinations is regarded as a measure of success or otherwise, success of the child in "soaking-up" enough facts to pass the examinations, and success of the teachers in "driving-in"—to change the metaphor—such facts. There is, too, the further fact that "taking the scholarship" or "school certificate" becomes regarded as the completion of each of the two stages—elementary and secondary—of a child's school life. The tendency to regard the passing of an examination as an end in itself, rather than a means to an end, may not be in the teacher's mind, but it is more often than not in the child's mind—and that due to the teacher's attitude. It cannot be repeated too often, that the true end of education is not merely the acquirement of knowledge, but knowing how to use knowledge, the development of personality, and the acquisition of a sense of community.

Another defect of formal education is connected with the acquisition of knowledge. More often than not—although the position to-day is better than it was—the child is given facts at a faster rate than it can really absorb them, and fit them into what is already known. And the facts are given to the child, whereas it should be taught to find them for itself. Such training is necessary since, in later life, it will not have teachers at hand to help in this connection. It is worth noting what happens to children who go on to a university, where students are not so "spoon-fed" as in school, and have to do more

work on their own. One often notices that it is not the scholar who knew the most at school who succeeds best at the university but, rather, the scholar who still has enough initiative and native curiosity to find out things for himself.

The examination-complex is associated with another defect in our educational system, namely, specialisation at too early an age. It is obviously necessary in a complex civilisation like ours that people must specialise, but there are dangers in so doing especially if it begins too early. It breeds a narrow-minded and rather intolerant attitude to subjects other than one's special one. One of the reasons for the fact that so many clergymen, for instance, are narrow-minded and even ignorant of scientific and technical ideas—thus making them strangers to most of their educated parishioners—is simply that they began too early to specialise in the theological and classical subjects.

Education is for the whole man. It should, therefore, cater for, and develop interests other than the subjects necessary for passing examinations, or for earning a living in any particular profession. Education is more—or should be—than the acquisition of specialised knowledge. One may know a lot of facts, and yet be uneducated in the true sense of the term. One mark—and an important one—of a well educated man is that he sees the relationship between facts and phenomena. It is by taking the wider view, by relating apparently disconnected facts, by looking for general principles that knowledge, as a whole, advances. It is not given to everyone, as it was to Newton, to see the inter-connectedness of the daily rise and fall of the tides, the annual revolution of the earth around the sun, and the fall of an apple in a Lincolnshire garden, to see that all these and other phenomena were illustrations of one general principle—the “law of gravity”. But it should be within the power of an educated person to see relations that an uneducated person cannot. Yet again, how often does the school system with its separation of one subject from another, tend to suggest a different attitude.

There are, of course, some teachers and some subjects which do bring out the inter-relatedness of phenomena—geography, and above all, geology, is one such subject, but then the latter subject is not usually taught in schools.

A good deal of the sexual maladjustment, and many of the problems that arise from insufficient knowledge, are the result of erroneous ideas about co-education that still exist in some of our schools. In adult life the two sexes have to live and work together, and it seems only reasonable that the sooner they begin to work together the better it will be.

It should be said, of course, that the educational authorities—or some of them—and the more intelligent amongst teachers, are alive to the defects in the present system, and are doing something to overcome them, but they are still in the minority. There is always a time-lag before new knowledge in a science is applied, and especially is that so in psychology. There is, too, the point that knowledge of the mind and its development is still in an early stage, so that some are loath to try out theories, until they have been more firmly established. There are other difficulties in the way of properly applying our new knowledge of mental development, for example, the financial and man-power difficulties. It must be clear that no teacher, however convinced he may be of the need for it, devotes time to personal study and encouragement of every child in his class, when that class may consist of thirty or forty children. In such a case, he must perforce treat them as units, rather than as individuals. I have known, personally, cases where a child who was considered dull at school proved to be quite bright and teachable, when it was taken in hand individually by a coach who was able to study the child as an individual. Of course, that method, although ideal, is impossible in practice for all children, but smaller classes in school would approximate more to the ideal than exists at present.

One defect in the educational system which had much

serious effect, in the past, in creating repressions and inferiority feelings, namely, the maintenance of a rather rigid discipline by authority, almost amounting in some cases to fear, has been largely removed. Teachers now realise that the best way, not only of teaching a subject, but of ensuring a good, if not rigid discipline, is through interest. The attention of a child is distracted—so leading to lack of discipline—through lack of interest.

Other improvements, based on new knowledge includes more teaching, especially in the early stages of the child's schooling, by what is termed "the play-way". Children are given opportunities for expressing themselves, their artistic and creative abilities, for instance, by using, with but little control, pencil and paper, plasticine, etc. The prefectorial system, which has been in use for long in our public schools, has been introduced in various forms, into the state schools. This has helped in several ways—it inculcates a sense of responsibility and self-discipline; it affords an opportunity for potential future leaders to show their capabilities, and it gives the children additional opportunities of expressing themselves and certain of their instincts. It gives a child the opportunity, for instance, to express his sense of importance. Children who are "difficult" are sometimes so because of a feeling of frustration, which may arise because they are not allowed any responsibility. They are treated as children, and they tend to resent such treatment, for they soon feel that they are individuals. To make one of such children a prefect, or monitor, does help in removing such a feeling.

In concluding this section on education it may be as well to note that the reform of educational methods should begin with the teachers, many of whom were trained before the new knowledge of the child mind was generally accepted, and many of whom are loath to change their ideas. It is only the small minority of teachers who attend "refresher-courses" or study recent literature. There are still teachers who tend to continue with the methods implied in the phrase "Children should be seen and not

heard ". Under such a system the child is merely passive, being regarded as a vessel into which so much information is poured, and is given little opportunity for using his own initiative, developing his curiosity or his imagination. Many women teachers are spinsters, with consequently little natural outlet for certain of their instincts and this may lead to repressed and partially neurotic personalities. This can have unfortunate results on the children put in their charge.

CHAPTER X

CHILD PSYCHOLOGY

SOMETHING has already been written of the child mind and much of what has been written earlier of adults, applies equally to children. The perception and memorising and learning power of a child's mind are similar to those of an adult's; the child feels the same emotions with the exception of those associated with the sex instinct. Yet despite this close similarity there are differences between the typical adult mind and the typical child mind, although one grades insensibly into the other. A line of demarcation between child and adult can only be drawn arbitrarily; some might draw it at puberty (the onset of which varies with individuals), others might place it at school-leaving age. Of one thing only can we be sure, and that is that the legal definition of a child as a person under twenty-one years of age, has no psychological basis at all. A person of twenty-one is mentally an adult.

It may be best to discuss first, a few of the general differences between the child mind and the adult mind before passing to a consideration of details. To start with intellectual differences, there are two main ones, namely, difference in experience (mind content) and the ability to generalise (mental method). It is obvious that, with few exceptions, an adult must have had a greater experience of the world than a child. That means that the child's mind will not have the same "store" of memories on which to draw in its thinking—there will be no—or very little—past experience available for guidance. This, of course, is almost too obvious to need stating.

There is, however, another consequence of this lack of experience which may not be so obvious but which is

important. It is this. We saw, when discussing perception, that we never receive a simple sensation; that our mental impressions of the outside world consist of sense-impressions plus something else, a something which is derived from our previous experience, and memory, and a degree of interpretation. Obviously, in the case of the child that "something" which is added must be considerably less. Children thus see—younger ones even more than older ones—a different and much stranger and intriguing world than we do. They are less sophisticated and more realistic, for they look at things with fewer preconceived ideas, and with less proneness or even ability to interpret. To the mind of the child, the world is a fresher and more exciting place than it can be to an adult, who "never can recapture that first fine careless rapture". The first perception of anything must inevitably be very different from any subsequent perception of the same thing—the child, especially the young one, is constantly perceiving things for the first time—for him the world is exciting and stimulating.

Connected with this difference in receptiveness of the environment there is a difference in reaction to the environment. The adult, for various reasons, develops inhibitions, adopts a "poker-face" attitude towards other people, finds that it does not pay to "wear one's heart on one's sleeve", learns to dissimulate. It is true, of course, that certain conditions may temporarily make the adult less sophisticated and uninhibited, e.g., the intake of sufficient alcohol, mild anaesthesia, great emotional stress, etc. The child on the contrary, usually "says what it thinks", acts naturally and not according to a conventional code. Parents are often embarrassed by the way, as they say, in which their children let them down in public yet all that the child has done is to react normally and naturally to a given situation, e.g., tell the truth and not a conventional "white lie". Children, like animals for that matter, do not pretend—as adults so often do—to like a person when they dislike him or her. They are not hypocritical, unless

forced to be—and that's the pity, they are usually forced to be, and often at quite an early age. The educational and civilising process through which we all have to go, does tend to stifle natural responses to stimuli—they tend to destroy naturalness, although they have their value too, for without them probably no social life, as we know it, would be possible.

A second intellectual difference between the child and the adult is concerned with that rational process which we call the faculty of generalisation. Until about the age of eleven or twelve, the child does not generalise. It requires an effort of imagination on our part to realise what that means. When we see an object, or hear of a process, we regard such as an example of a larger class of objects, or as exemplifying a general principle. Some examples may make this clearer—we see, let us say, ice melting, the mercury in a thermometer rising, a kettle boiling—and we realise that all these events are related, they are all the result of a rise in temperature. Now, the child does not see that relationship, partly through lack of experience, partly because of an inability to generalise.

Let us take a simple example—you see a lion, a cat, a tiger, a dog—and you say they are all animals, i.e., you use a general term which embraces them all. The child, especially the young child if told that a dog was an animal would not simply say, when seeing a lion, that it was an animal. The child regards things and events as units, separate and distinct, whereas adults see them as instances, or examples, of general laws and principles.

There is a very practical point that emerges here. When telling a child anything it is of little use to employ vague generalities such as "be good". Specific instruction must be given, for the word "good" is a general term and an abstract one, too. It is for this reason that primitive moral codes are cast in such negative form as the Ten Commandments—specific actions being prohibited as wrong—for the mentality of the human race, in its infancy, is akin to the mentality of the individual in his or her infancy.

A third and related difference between a child and adult is seen in the way that things are explained. Just as primitive people give explanations for natural processes in terms of the action of spirits—dryads, naiads, sprites, fairies, etc.—so do children. The latter cannot conceive of impersonal forces or energies; they explain in terms of their own direct experience—things happen, for them, because persons do something, therefore something analogous to persons are responsible for all the changes going on in the world. Children are animists. When we couple with this the vivid imagination which is also characteristic of the child, it is not to be wondered at that children “see fairies at the bottom of their garden”. Parents are sometimes worried about the fancies of their children and try to stifle this imagination. Such a procedure is harmful and unnecessary. Harmful, because it is interfering with a perfectly natural characteristic of childhood and unnecessary because in the normal course of things, the child will grow out of such a stage. It is as silly to blame a child for being animistic and imaginative as it is to blame it for being smaller and weaker than an adult.

Individuals are the products of nature and nurture, of heredity and environment—but, obviously, in the case of children, the heredity or nature factor, must be more marked than the nurture or environment one, for the simple reason that the latter one can only become effective with time. Environment can only affect an individual if the individual remains in the environment, and the child cannot have done that as long as the adult has done. As a child grows older, so the effects of nurture becomes more marked. It may not be too trite to remind the reader that a child is not born educated but educable, that is with the capacity for being educated. Much of what is meant by education—using that word in its widest sense—consists in building-up habits in the child. This process begins at an early age, with, for example, the inculcation of habits dealing with personal hygiene, and should con-

tinue both in and out of school. Teachers are often blamed for failing to teach children good habits when really it is the parents who are at fault. We need to remember that a much greater part of a child's time is spent out of school than in it and also, that a child learns (as most adults do, too) more by example than precept—and it is in school it receives the precept, but in the home, the example.

As we have already noted, individuals are born with certain instincts, tendencies and characteristics. A little more may be said here of how some of these inborn urges show themselves in children, especially young ones. We are all born curious—one of the commonest words on a small child's lips is "Why?" (or an equivalent). That is one expression of that instinct and one that may cause annoyance to parents, especially if they are busy or short-tempered. It is trying to be always answering questions, but if possible, it should be done. To thwart or prevent the satisfaction of an instinct may cause trouble. The child whose questions are not answered at home may seek answers elsewhere, and those other sources of satisfaction may not be too suitable; or, the child may lose something of its inquiring spirit, and gradually cease to take the same exploratory interest in the world, and that attitude once set up, becomes carried over into later life. It may not be too much to say that the great majority of children finish their formal education with their instinct of curiosity stifled and repressed. A good deal of that eager wide-awake exploratory attitude that characterizes small children, has gone from the average 'teenager and that is unfortunate, very unfortunate. It is only those few who keep their curiosity instinct functioning well, who still go on asking questions, seeking knowledge, never content with things as they are, who make the discoveries, create the inventions and ideas that change society, that improve and ameliorate social conditions, that produce paintings, poetry, plays and philosophies. Those who stifle and thwart the child's instinct of curiosity little realise what

potentialities they may have prevented from becoming actualities.

By the way, when answering a child's questions there are one or two points to notice. Never tell a child a lie—if you do not know the answer to the question then (even if it means extra work for you) try to find out or refer it to someone who does. It is not advisable to say you do not know, for that may lead to loss of prestige for you in the child's mind. Help the child to find answers to its own questions—sometimes this can be done by showing it what to look for, when and where, or by referring it to one of the many admirably illustrated "What and Why" books now available.

Another way in which the curiosity instinct is expressed is in "pulling things to pieces". A child who gets hold of, let us say, a clock and then proceeds to pull it to pieces, is not being—as most adults think—deliberately destructive, it is trying to find out how the thing works or what is inside.

Another instinct which is important in childhood is the creative one, the urge to make something—and as in the case of the curiosity instinct its expression is often thwarted with similar ill effects. One of the commonest ways in which the creative urge shows itself is in imaginative play. We have all seen a child with a number of bricks or cards, and noted how often it will set them out in a row, and then maybe say "There's a train"—and, for the child, those blocks are a train. Or, at a slightly later stage, there are the boys (and girls, too) who will construct all sorts of things (cars, lorries, aeroplanes, etc.) out of Meccano and similar material—and not just the models in the book supplied with the set; or the little girls who, from a few scraps, will make dresses and other garments for their dolls. Incidentally, the care and affection a small girl will lavish on a doll, is an expression of the maternal instinct which shows itself quite early.

It is the presence of the creative instinct, and the desire to express its urge, that accounts for a phenomenon that

often puzzles parents. A child may be given the most elaborate and expensive toys, and yet lay them aside almost at once, and take up some much cheaper toy or even some pieces of waste wood, or paper or bits of wire and thoroughly enjoy playing with them for hours on end. This is because in the latter case there is scope for creative activity, for inventiveness and ingenuity in making something for itself, and by itself, whereas the expensive toy is a finished article—it just is, and nothing more can be made of it. Such action on the part of a child is not, as is so often imagined, a sign of ingratitude, it is, rather, a sign of purely natural behaviour, the outward expression of an innate urge.

The imaginative play is done, in the earliest stages of child life, with things, with bricks and cards, etc., but, later, when the child has become literate, it may be done with words and ideas. Examples of this are shown in the case of children who make up stories for themselves—and more do that than adults sometimes imagine. You see, the child is sensitive to criticism, so usually it refrains from telling its personally-created stories to its elders, but one can often hear one child telling such stories to another. Play often affords an opportunity for the expression of the impulse or urge to mastery, for competition enters into a number of games. Imitative play, e.g., dressing up as adults, is another way in which the child expresses its urge to be an adult, to be important.

Then there is the strongest instinct of all—the ego or self-instinct. This shows itself in children in various ways. One way is that of self-display. We all know the child who wants to show off, to attract attention. More often than not, such behaviour is severely reprimanded, though perhaps not so much nowadays as in the past when children were supposed "to be seen and not heard". But within reason at least, this self-expression should be allowed. It is noteworthy how those who have been over-suppressed in childhood follow one of two courses—both bad—in adult life; either they "break-out", as we say,

and become rebels against society (how often have clerical homes produced "bad" children, at least in the past!) or, more frequently, they are "driven in" on themselves. Those persons we meet who seem to lack initiative, who are "willing to be put upon", are, as often as not, those who in childhood were prevented from expressing themselves naturally. It cannot be too often stated that to dam or frustrate the expression of an instinct may—and usually does—lead to trouble.

The ego-instinct is the most important of all the drives, or urges, with which humans are endowed, and to thwart it is dangerous. There is little doubt that many cases of so-called juvenile delinquency are due to such thwarting. Let me illustrate with an actual case that recently came to my notice. It concerns a boy twelve years old, who developed a tendency to steal, especially from the pockets of his schoolmates' coats left in the cloak-room. His parents and teachers were worried but luckily, they did not go straight to the police or a juvenile court. The boy, John, was taken to a child-guidance clinic (incidentally it is a pity more parents do not realise the good work such institutions do) and there examined and questioned over a period of time. Eventually the cause of the trouble was found—it was this—a new baby sister had recently turned up in the family and, rather naturally, she became the centre of attraction for parents and relatives. At first, John too, was interested and offered several times to wheel baby out in her "pram", but the offers were turned down. Mother did not feel too happy at trusting baby to him. He gave up offering; he felt out of things, someone else was occupying the place he had held so long—the centre of the family stage—his ego was hurt. Very naturally he tried to make himself a centre of attraction elsewhere, namely, among his school friends. But how was that to be done? He had no special gifts, either scholastic or sporting; but suppose he had things the other boys had not, suppose he was in a position to buy sweets or ice-cream, not only for himself, but for others,

then the others would notice him—so he argued to himself—but how was that to be done? He could not ask his father for more pocket-money—the new baby had put the household expenses up—but he could steal money and he did. Too fanciful a supposition, you may say; where's your proof? Well, the psychologists at the clinic gave John's parents some advice—this was it—send the boy off for three months to his grandmother's (that was done; there he was the centre of things again) and, when he comes home, try to treat the two children alike; explain to John that baby sister must have a little more attention paid to her than he gets, she is small and helpless, but he is a big boy and can do a good many things for himself (appeal to his capabilities) and show him that he is an equally important part of the family as the baby. The parents did as suggested—and there was no more trouble with John.

A child who feels neglected, out of things, often as a result of a second child coming after a long interval during which the first one has been "king of the castle"—will resort to all sorts of devices to attract attention. It may, as John did, seek attention elsewhere; it may tell the most outrageous lies; it may indulge in fits of temper or feign illness—that always attracts attention.

Of course, the child no less than the adult, cannot always express its instinctive desires in the natural way—it has to live in a world with other people; it meets with opposition—but much suffering and mental unbalance could be prevented if parents realised that the child has these instinctive urges and also understood something of the way in which they may be sublimated. I say "parents" because unfortunately, a good deal of damage can be done before the child attains school age and comes under properly trained teachers. It is rather odd how much propaganda is directed towards teaching parents, and especially, mothers—in child-welfare clinics and so on—to look after the physical welfare of their children and how little is as yet done to teach them about the mental welfare

and training of their children, and yet the latter is perhaps the more important. It is possible by subsequent care to turn a physically poor child into a physically good or at least average adult but little can be done to alter a distorted mind—and the early years are the important and formative ones for mental development. There is a good deal of truth in the old saying attributed to the Jesuits—"Give us a child until he is seven and he is ours for life." In the mental sphere it is literally true that "the child's the father of the man".

There is yet another way in which adults, and especially parents, can interfere for ill with a child's mental make-up and that is by example. Let us take the case of fear. Small babies fear nothing, or practically nothing—noises are exceptions—partly of course through ignorance. There is an old and widespread belief that the special fears and antipathies of an adult, are the result of experiences and associations that were formed, or set up, during infancy. Investigations have shown that, in some cases, the belief is justified. A person may fear dogs, for instance, because he or she was bitten by one when a child. But, more often, it is found that the fears of adults—the result of childhood fears—arise from copying adults. Children who did not originally fear thunder, for example, may learn to do so because their mother, or some other adult who is afraid shows that fear in front of the children. Adults who have such an irrational fear would do well to keep away from a child during a thunderstorm.

Obviously we cannot discuss this fascinating subject of child psychology in any detail here, but before passing to another subject, it may be of interest to tabulate briefly a few characteristics of certain age-groups:—

- *Infantile phase—ages 0—2.* The infant through nutrition, awakening of sensations, and perceptions, and developing sociability, takes his part in a world which is as yet not differentiated from the self. Security is appreciated, food and bodily comfort being the main concerns,

that is, satisfaction is sought for the security instincts ; any lack of satisfaction is shown with some violence, and the means of obtaining satisfaction may leave permanent marks on the personality. By the end of the period, the infant should have been weaned, achieved the upright posture, learned to walk and to talk in a simple fashion.

First childhood phase—ages 2—4. Gradual discovery of the outside world through senses and motor activities ; social contacts increase and innate intelligence develops.

Second childhood phase—ages 3—6. Most truly a child during this stage. Normally, children at this time are energetic, beginning to appreciate their physical powers, but their activities are purposeless. There is no concentration and the attention is easily diverted, therefore change and variety of occupation is needed to keep them interested and attentive. This is the play age. Children are interested in things and deeds rather than in words. Their vocabulary is small. They are very curious. They cannot reason, e.g., they have no understanding of cause and effect. During this stage the child must learn to appreciate restraint on normal expression of instinctive urges ; there is need for training in cleanliness, etc. The child should be taught that restraint is in its own interests, e.g., it must realise that if it breaks something then it cannot have it ; if it goes too near the fire it may get burnt. Difficulty is to strike a balance between over-restraint and over-freedom. Too much restraint may produce shy, nervous, often stammering types, whilst too much freedom ill fits the child for the subsequent restraints that society imposes.

Third childhood phase—ages 6—11. Usually schooling begins at about six, and the child achieves a certain objectivity that it could not acquire before, owing to its being placed in the hard trials of a social life that is more complex and less gentle than that of the home. This is a period of rapid growth, both mentally and physically, especially mentally. Learning to read and write makes a great difference ; an interest in words develops. Develop-

INDIVIDUAL PSYCHOLOGY

This is the name given to the group of theories and practices or schools, founded by Alfred Adler (1870—1937) of Vienna. Adler began his professional career as a student and associate of Freud, but later broke away from his master and founded his own school. Adler tended to minimise the role which sex plays in human thought and development, and to lay greater stress on the ego or self. It is partly for this reason that the title "Individual" is applied to his teachings. This is in contrast to Freud, who used the word "sexual" in so wide a meaning as to extend it almost to "personal", and who, therefore, stresses the important part which our sexual relationships play in our mental life.

Like psycho-analysis, Individual Psychology is a special school or type of analytic psychology inasmuch as it tries to discover the content of the unconscious and what goes on in it. It differs from psycho-analysis in its relative simplicity, and inasmuch as it has not formulated so elaborate a terminology.

Adler, like Freud, set out to discover the factors and forces that underlie and motivate human character and behaviour. At the start of his inquiry he accepted the Freudian view that the mind was the scene of conflict between varying instincts, mainly sexual in nature, but he gradually changed his opinion. He came to recognise the importance of society in forming an individual's character and affecting his behaviour. Like Aristotle, Adler regarded man as a social animal, and believed that only in society or community life, did a man realise himself.

Freud had taught that there is always conflict between the ego-sex-instincts, and the rest of the world, that human beings found it difficult to adapt themselves to things as they are (and that includes other people). Yet it does not take very acute observation to see that close social relationships do affect individuals; that men are, in some degree at least, products of their environment. Yet, at the

same time, we also see that men do not merely act as automations in response to social stimuli; they adopt individual attitudes. Adler's view was that the attitude adopted in, the character formed by, the behaviour of, the individual depended on and were the outcome of, the impressions formed in early childhood. (Here he agrees with Freud in the importance of childhood.) The environment is important, but what is even more important in developing character is the attitude which the individual adopts towards the environment. Some accept it, others partly accept it, still others rebel against it.

Men live in communities, and have done so for a very long time; there is, therefore, what we may term a community feeling in all of us, an expression of the herd instinct. At first sight, this seems to imply that the individual must submerge his individuality for the good of the society to which he belongs, and be ready to co-operate fully with others, be loyal to his community, be ready to subordinate himself to the communal codes. But this is not so, for the attitude by the individual to his social environment is not one that he consciously and deliberately takes up as an adult member of society, but one which arises out of the attitude which he adopts in early childhood. That attitude determines his behaviour, and personality, and is itself determined by the object which the individual pursues. Each of us has such an object or goal which he strives to attain, even though that goal is in the unconscious. This goal is formed in childhood, and determines what we become. We, like the Wise Men, seek a star. All living things seek a goal.

Psychologists before Adler were mainly concerned with the question "Why does an individual act in the way he does?". Adler's great contribution to psychology is to look for the motive form or reason in human behaviour, not in what went before, but in what the behaviour is designed to achieve, even if the end in view is not consciously realised by the individual. On this view, human

beings are not casually determined; they are motivated, not by a push from behind, but by a pull from in front, namely, the attainment of some end or goal.

That goal is the seeking of superiority. Almost every human being wishes, and tries to assert his individuality. Adler thus lays great stress on the ego-instinct which he regards as the dominant one. It can, of course, be argued that the ego-instinct does include the sex and herd instinct. The expression of the sex-instinct gives pleasure to the individual. It also ensures continuation of the species, and there is little doubt that people do feel a pride in having children because they are abiding memorials of themselves (flattering to ego), and also the act of sexual intercourse does give the male, at least a feeling of superiority (through conquest)—it may give the female a similar feeling if she has been the "siren" in the case. The herd instinct is involved with the gratification of the self-instinct, because it is only in society that a man can hope to shine, to assert his individuality. A Robinson Crusoe may be able to say that "I am the monarch of all I survey" but there can be little real satisfaction in such a position.

An examination of our fellows and their behaviour does seem to illustrate Adler's central point. We see examples in plenty of men and women acting assertively, talking dogmatically, trying (even if unsuccessfully) to bully and threaten, or cajole or persuade, in order to have their own way. We see others who try to get their way, to attract notice, by real or assumed saintliness or humility, for individuals vary (for a reason to be seen below) in the ways in which they strive to gain attention and reach their goal.

Adler held that this desire for superiority was present right from the beginning of life—the child's fundamental wish is to overcome the inferiority of status—both physical and mental—which is his as a result of being a small child. But right from the start of life, the individual is part of a

society—the family at first—to which he has to adapt himself. Since the individual has to live a social life, some form of discipline, of “give and take” is necessary. We have already noted that there must be some rules, at least, if the cohesion of a society is to be maintained. The child has to be taught to co-operate with mother (at first) and later with others. There is, however, always frustration, for the child may not, and rarely does, want to do as the parent wishes. It is not easy to learn to “give and take”. Because of this, it is important that parents should be tactful in this training of the child, for unless they are careful, the child may adopt a peculiar “style of life” which gives it some sense or feeling of superiority, although that style may be unsuitable for real achievement.

The child imagines that society is hostile to it, is trying to repulse it and force it down. The result is the feeling of being “less”, or the creation of an inferiority feeling, hence the continual striving for significance. The feeling of inferiority is the driving force behind the quest for importance, behind the desire “to shine”.

There are two main ways of dealing with this inferiority feeling. An individual may run away, avoid making decisions, live “to himself”, or he may try to gain importance by achievements and skill in some particular field—the nature of which will, of course, depend on his endowments, physical and/or mental. One will strive to shine on the sports field, another in art, yet another in an intellectual sphere.

It is obvious that the former style of life, for example the escapist style, will not, in reality, bring real achievement. Yet it may, all unwittingly, be developed in early childhood by thoughtless parents. The child who is always being corrected and snubbed, may appear to agree with his parents, he may become very submissive, but actually he is gaining his object in so doing because in submissiveness, he is only showing that he is adopting the

way of escape, retiring into a dream world of his own, where he can be "king of the castle". A similar life-style may be adopted by the child who thinks, rightly or wrongly, that his parents do not care for him.

Such a child, when adult, may always act in accordance with this life-style; he will give up easily when faced with difficulties, he will tell himself and others that problems are unsolvable, or that he is incapable of acting because of some strange illness for which he cannot be blamed. Such an individual may, in a way, achieve his goal, but it is a fictive one and not real achievement. It does often happen that such maladjusted people (for such they are) are helped by being shown this "life-style" and being taught to adopt a more useful way of reaching their goal.

This life-style is formed quite early—it arises out of the attitude towards the environment which the child adopts in order to achieve some significance (and will vary with the individual) and it determines the individual's character and behaviour throughout life. In my view it is formed fairly early in life so that any great change of character after about the sixteenth year is most unlikely. Our characters and our behaviour in adult life are, on this view, simply the expressions of a plan or style of life which we formed when young children.

There is, in addition to the child-parent relation, the relation between the child and other children in the family. Adler lays great stress upon the birth order or position of the child in the family. The first child, who has for a while been the centre of the family group, may become jealous at the arrival of a second child, especially if parents are thoughtless. It will therefore strive to keep the central position, the importance that it once had. One way in which this can be done, is by its being obedient, thus showing its greater development and civilisation. It will, therefore, tend to respect law and order, and thus form a life-style which makes it, when adult, a believer in authority and the rule of law, a conventional individual. The second child is always striving to catch up the elder.

It will strive to excel in those characteristics which the elder does not show ; it will detest the weak points in the elder, and try to win praise by developing such points itself. If one child is good at games, the other may try to win success at lessons, for example. The youngest child, who is usually everybody's " pet ", may develop the style which in later life shows itself as helplessness and being of a winning nature.

There is another point about the child wherein Adler differs from Freud. It is this:—you will recall that the latter held that a child is often in conflict with (although unconsciously) one of his parents. Adler held that the child will often try to imitate the parent with which it is in conflict. The reason is not far to seek. The parent who is always, as it seems to the child, countering his wishes, usurping his affection in the eyes of the loved parent, will appear to the child to represent power, so the child may tend to imitate that parent for that very reason. Thus we arrive at a fundamental law which governs the child's development—it is this—the child will strive to develop those qualities, which it hopes will enable it to gain importance, power and superiority in the family group. Those qualities form the life-style, a style of behaviour which, as the name implies, will endure with little change throughout life.

Family life is all important because of its influence in developing character, but formal education also plays a part in helping the individual to fit into community life. That is the all important task in life. Although, naturally, we are individuals seeking significance, we live in society and have to learn to " fit in " ; that is usually our only hope of living a normal and happy life. The real purpose of education, whether in the home or the school, is to train a child to be a member of the community, to help him find his appropriate niche in society, and also to teach him that each member of society who plays his part aright is as important as any other. (But more must be said of education later.)

FICTIVE GOALS

We have already noted that it is the individual's feeling of inferiority (due to his conflict with the environment or to physical disability of some sort) that, more than anything else, prevents him from fitting into the community. It follows, therefore, that the chief problem every individual has to face is that of his own value. We all seek personal importance, but in seeking compensation for an imagined or real inferiority we over-compensate; it is not enough to do things well, to be as good as others, one must do better, one is drawn, even though unconsciously, towards perfection.

Feelings of inferiority lead to the setting up, not only of a life-style but of a goal and that a fictive one. Now, our civilisation is essentially a masculine one—it has been so for long—the man is stronger physically, he has more opportunities and privileges, so the child unconsciously gets the impression that the man is superior to the woman, because he regards the man as a symbol of power. How often does one hear a child express his ambition as "I want to be a man"! We all know how it hurts a small boy's prestige to be regarded as a "sissy", that is, a girl. So he protests against any treatment that seems likely to lessen his importance as a male. Adler considers that this "masculine protest" is one of the most important of the fictive goals.

Not only males, but females too, may have masculine goals; in their case the "masculine protest" shows itself in dissatisfaction at the feminine role. Women who have this goal show evidence of it in unwillingness to accept the duties and responsibilities of their sex; they invade spheres hitherto considered exclusively masculine; they resent, possibly not actively, the ties of motherhood. If the "masculine protest" is strong there, it may be that marriage will only serve to develop conflicts and consequent neurosis. Some unhappy marriages are due to the wife being of the type mentioned.

The "masculine protest" is a fictive goal because it is derived from a false idea—the idea that because the sexes have different functions they, therefore, have different values. This difference has, unfortunately, been emphasised in our civilisation, but it may be that the future will see changes.

The point that Adler stresses is, that our fictive goals are all important; they influence our character, and all our behaviour; they remain unchanged throughout life unless they are revealed by analysis or some other method, when it may be possible to change them.

NEUROSIS

The neurotic lives a life which is one perpetual struggle and conflict. His mental tension may be shown in such physical symptoms as inability to concentrate, "nervy" habits, trembling fingers, irritability, etc.

Adler holds that it is a mistake to take the symptoms as a starting point in study and that the various forms of neurosis—hysteria, anxiety conditions, compulsion neurosis and so on—are the same inwardly and only differ in the symptoms.

It will be recalled that Freud taught that neurosis is caused as a result of conflicts in the unconscious, conflicts which occur between the ego and the ego-ideal, between the demands and desires of the self, on the one hand, and the conventional codes, the ideal, on the other. Adler, on the contrary, assigns a larger part in this mental battle to the conscious mind. He thinks of the conscious and unconscious as being complementary rather than in conflict. He teaches that the real conflict is between capacity and opportunity on the one hand and ambition on the other. This may be expressed more simply as a conflict between wishes and actions. This conflict produces mental tension and that, in its turn, gives rise to neurotic symptoms. Adler probably comes nearer the truth than Freud but both views are incomplete.

This conflict is brought about as a result of maladjustment between the individual and the community, and that results in a life-style which does not enable the individual to face reality as it really is. He sets up fictions as wrong goals. The cure is to analyse the individual, and try to determine his life-style and goal. It is often possible, then, to show him that there are other ways open to him of attaining importance, of being significant, ways which will enable him to face, rather than flee reality, and make him a normal and useful member of society.

We must remember, however, that there is frequently a definite reason often of a physical nature for neurosis, which neither Freud's nor Adler's methods will cure. Doctors are too often ready to try to make the cure fit the patient instead of working out treatment for each person.

DREAMS

It will be recalled that Freud considered that most dreams are in the nature of wish-fulfilments, that is, they relate to the past. Adler, on the other hand, regarded them as indicative of the future and the present. This does not mean that he thought that they were prophetic, far from it, for the imagery in them is derived from past experience. He thought that they were best regarded as rehearsals for actions which the dreamer had to carry out in the future or situations that he had to face. The dream, if properly analysed, would then show the method which would be adopted by the dreamer and that method would, of course, be in line with the "life-style" of the individual concerned. Dreams are thus trial solutions to anticipated problems.

An example may suffice to illustrate the point just made. A certain vicar had this dream. He was walking up the path towards the church porch and saw through the open door two men trying to open the church safe (in actuality, this would have been impossible, since the safe cannot be

seen from the door, that is, this dream also illustrates how we displace and condense images in a dream). He stood and watched the men at work but did nothing about the attempted theft or calling for help. This hesitancy was characteristic of the individual concerned, for when faced with problems in life he was prone to wait upon events, rather than make a definite decision. He was one of those individuals who pride themselves on being able "to see both sides of a question", and who can think up equally good reasons for acting one way or another. Such people rarely act on their own initiative, unless some strong emotion is aroused.

Such a life-style is often found in those people who, as children, were "spoiled", that is, those who had everything done for them, all decisions made.

Adler agrees with Freud in teaching that distortion and disguise occur in dreams, that emotions associated with one object become transferred to another object or person, and that we fuse together into one picture objects and persons which were actually observed at different times and in different places—the dream cited above is a case in point. Interpretation is made difficult as a result of these mechanisms. Dreams are visual metaphors—just as in a metaphor we use a word originally coined for one purpose in a different meaning, so in dreams we use experiences from one time to refer to another. Dreams point to the future so far as mode of conduct is concerned, but they are rooted in and depend upon the past, for both the images and the "style of life" are already there. Adler, too, agrees that we dream more often than we imagine we do, but we forget our dreams more than we remember them, because our conscious mind is ashamed to admit our real motives, our "life-style". Examination of the dream would do that, so the memory of the dream gets repressed. Unlike Freud, Adler does not hold that dream-analysis will cure mental ailments; it will not resolve complexes, as Freud believes, because it does not make such complexes clear but it discloses the "life-style"

and if the neurosis is due to a faulty "life-style" then that must be removed in other ways.

It follows, on Adler's view, that it is not merely necessary to interpret the symbolism of the dream, but, for a full interpretation, it is necessary to know something of the dreamer's dynamic pattern of life. The ambitious person will, in his dreams, overcome difficulties or solve problems easily; the person who is afraid of life, and its problems will, in his dreams, meet with situations and problems which baffle him, and which will serve to increase his fears, for he will be unable to face them; he may run away.

ANALYTIC PSYCHOLOGY

There is a third school of thought which resembles Freudianism in many ways, namely Analytic Psychology. This was founded by Carl Jung, of Zurich, who, like Adler, began his professional career as a disciple of Freud, and then later broke away from his master. Jung used Freud's methods of free-association, and dream analysis, but later developed his own method of word-association in analysis.

Like Adler, Jung thought that Freud over emphasised the role that sex plays in the human mental life. He thought that the libido or driving-force of mental life, must be defined as general psychic energy; sexual energy forms a factor, but only one factor, in it. In connection with this, Jung also disputed Freud's teaching of the general presence, and importance of the Oedipus complex in determining behaviour and attitude, either normal or neurotic.

Jung parted company with Freud on other points, for instance, he held that some, if not all neuroses are due to present conflicts rather than, as Freud supposed, to past conflicts which had produced childhood complexes in the unconscious. There is some evidence that Jung is on safe ground here, for cases are easily come by where mental trouble has been brought about as a result of contem-

porary conflicts. A man, for example, may feel tempted, as a result of emotional action—to run away with another man's wife, with whom he is deeply in love, for instance—but the thought of social ostracism, fear of consequences, lack of means to support the loved one adequately, and so on may cause him to hesitate. The result may be a painful state of indecision and conflict, part of himself pulling in one direction, another part pulling in an opposite one. This may well result in a nervous breakdown.

Whilst Freud believed that in analysis the analyst should act merely as analyst, that is, should neither act as teacher nor moralist, Jung, on the contrary held that it was one of the analyst's functions to advise and help the patient. Freud thought that any advice or expressions of approval or disapproval on the part of the analyst interfered with the freedom of the patient. Such suggestions, coming from one who was, in a sense, authoritative might be accepted by the patient, and further repressions might be set up, as a result of conflicts between the desires of the patient, and the code set forth by the analyst.

Whilst stressing the importance of the unconscious, Jung differed from Freud in his views about its content. For Freud, and most psycho-analysts, for that matter, the unconscious may be regarded as the receptacle of our entire past experience. All that we, as individuals, have experienced, intellectually and emotionally, from birth—and even in pre-natal stages—is stored in the Unconscious. Jung considered that, in addition, to the individual memories, the Unconscious also included racial memories, for example, such a memory as causes a man to fear something dangerous in the dark, a memory coming down from earlier ages when life was "nasty, brutish and short". This theory of a racial unconscious, is made much of in Jung's writings. He used the word "archetypes" to denote such memories and he sought to explain much human behaviour in terms of such. This theory of a collective unconscious in which, as it were, we all share, is not accepted by many psychologists, partly because it

seems to imply that acquired characters are inherited. That latter idea runs counter to most of the evidence from biology and genetics. It seems, on analysis, that if acquired physical characters are not inherited, that mental ones are not either. The theory of a collective unconscious in which we all share, is helpful in explaining such feelings as being "in tune with the infinite", and those phenomena which are termed telepathic.

There seems fairly good evidence for telepathy. If, at the unconscious level, all minds are, in some sense, common, or parts of one collective unconscious, then telepathy might be explainable, since a thought in one mind would be a thought in all minds. We have already noted that some ideas in the unconscious appear in consciousness, whilst others do not; a similar state of affairs in relation to "telepathed" messages would account for the fact that only a few people are telepathic, that is, are aware, in consciousness of the ideas in the minds of another.

As one might expect from his ideas on neurosis, Jung differs from Freud and Adler in his explanation of dreams; for he does not regard them, either as wish-fulfilments, or as indicative of the "life-style". He relates dreams to the individual's present difficulties, and holds that they reveal the dreamer's unconscious attitude towards his life problems. The case cited above of a man in love with another man's wife is apposite here. The man in question—faced with a question of choice, and not knowing which way to turn—had this dream. He was driving a car, or alternatively walking, along a narrow winding street or lane which was bordered, on either side, by high stone walls. There was no room to turn the car, and there were no side turnings—the road just went winding on and on, and he, perforce, had to do the same. Here is an obvious relation to the problem the man had to face, or rather refused to face, in waking life. The dreamer's attitude is also revealed in the dream; he just kept driving, avoiding either wall.

SUMMARY OF ANALYTIC SCHOOLS

Although we have described three main schools of analysis, many variations have arisen, so that to-day the three types are not so clearly defined as they were. There are, too, analysts who do not belong exclusively to any one school.

It may be useful to summarise those points on which practically all psycho-analysts agree. All agree on the existence and importance of the Unconscious (even though there may be differences of opinion as to its content) in motivating human thought and life. All agree that emotional factors are very important in the unconscious and therefore, in our behaviour, which is nothing like so rational as we have believed it to be. Far from it; much human behaviour is far from being self-determined and free; on the contrary it is the result of repressed infantile attitudes, an early adopted life-style, or tendencies and attitudes inherited from our ancestors.

The contents of the Unconscious are not easily get-at-able, special techniques are necessary to bring the repressed ideas to the surface of consciousness. This difficulty of access arises from the fact that the ideas in question have been repressed. (Those ideas which are voluntarily driven out of consciousness by the will are termed "suppressed" ideas, and may be recalled subsequently.) The ideas and impulses which reside in the unconscious are not verbalised, but are experienced as emotion, that is, we may be consciously aware of an emotional state or attitude, but we cannot put into words what is causing it. This lack of verbalisation of ideas in the Unconscious also tends to make contact with the unconscious difficult. We think, consciously, in words.

The repressed ideas bear energy. If psychic energy cannot find a natural outlet, then it becomes dammed up until it acquires explosive force. This may then find unnatural and harmful means of outlet or expression in neurotic symptoms, such as hallucinations, compulsion neurosis, etc.

Psycho-analysts—and especially those of the Freudian school—agree that there are three main factors, or elements, which are all important in the mental life of humans. These are:—

- a. The Id, the name given to the instincts.
- b. The Ego—Freud defines this as the “coherent organisation of mental processes”. It may be regarded as reason based on experience, or that part of the mind which is in contact with the external world, the part that makes judgments, relationships and assesses values. Although partly conscious, and partly the self-conscious self, the part of mind that we call “me”. The Ego develops from the Id as a result of experience of life and of the fact that the purely self-directed urges of the Id cannot always be satisfied.
- c. The Super-Ego—this is the name given to that part of the mind which is termed, in ordinary language, the conscious.

It is the sum-total of our moral inhibitions and is a special development of the rational self formed by the acceptance of standards and codes of behaviour practised and taught by parents, teachers and others.

These three factors are often in conflict with one another. The Id, for example, prompting us to act for purely selfish ends, the Super-Ego bidding us be self-denying, and self-sacrificing. The Super-Ego urging us to act in accordance with the received moral code, the Ego bidding us question the validity or justification of certain, at least, of the moral prohibitions.

One of the biggest problems that each human being has to try to solve is how to maintain a balance between self-interest on the one hand, and the demands and conventions of society, on the other. The Ego has to struggle against both; it has, on the one hand, to free itself from being entirely controlled by the Id, by animal instincts

and infantile desires, and, on the other, it must free itself from being hidebound by the codes and conventions of society for reasons that are set out below.

The aim of psycho-analysis may, therefore, be summed up in a slogan, namely, "to set the psyche free". Analysis, of each type, sets out to bring into consciousness those unconscious elements or concepts in both Id and Super-Ego which are in conflict with things as they really are, or which are based on ideas or codes which cannot be justified at the bar of reason. The presence of such in the mind may lead to the development of false or bad "life-styles", or may give rise to unnecessary conflicts which may, in their turn, cause complexes that eventually result in neurosis of one type or another.

There is one point about analysis that should be stressed. Analysis is not as easy as the foregoing description may have led the reader to suppose. It should not be practised by amateurs or unfortunate results may ensue. Analysis of a mind is, in a way, comparable to a major surgical operation; it calls for considerable knowledge on the part of the analyst and it may give rise to delicate relations between analyst and patient that calls for experience and understanding. In a way, analysis is an even more serious undertaking than a surgical operation, for in it one is dealing with the unseen, and can never be sure what results may be produced, results which may not always show themselves immediately. These may be "delayed action".

And now, to sum up what the psycho-analytical psychologies have to teach us. We humans fondly imagine that our thoughts and actions are consciously pre-meditated, that they are rational and self-chosen. Such is far from being true. On the contrary much more of our thinking and behaviour is motivated by emotion and infantile desires than we realise, although it is true that we can usually produce adequate reasons for doing what we did, when we are asked why we acted as we did. We rationalise more than we are rational. We act and find

reasons afterwards, rather than think beforehand. Much of our behaviour is motivated by unconscious factors, by complexes created in childhood, or a life-style formed at the same time and of whose existence we may be unaware. We live, or rather, try to live a social ethic whose meaning and origin we have not thought out or about. We do many things, we respond to given situations in certain ways, not because we have been moulded or conditioned by our environment, so to do. There are not many individuals who look objectively and critically at the accepted and conventional code of their community. The great majority of people take such codes for granted. They accept the state of things as they are. Yet there are, in every age, those few who dare to doubt and to wonder whether certain, at least, of the moral precepts of any given society, may not be unsuitable for a changed social system and, therefore, productive of unnecessary conflicts.

It is, unfortunately, the case that codes of morals which may have had a purpose and a use, at one stage of human development, are maintained and regarded as desirable for later stages in the human story. The Decalogue, for example, may have been a desirable and useful code for a fairly primitive nomadic people many centuries before the Christian era, but it does not necessarily follow that it is so for an industrial and largely urbanised society to-day, yet it does form the basis of the present day conventional morality.

THE MATERIALISTIC SCHOOLS

There is another and very different type of theory about the mind and its workings that was popular for a while, in certain parts, some time ago. Members of this school, the materialistic school, deny, in fact, the existence of any such entity as the mind. They regard human beings as being entirely physiological entities, their behaviour entirely explicable in terms of chemistry and physics. The so-called mental phenomena are, on this view, considered to

be really bodily processes and phenomena. There is, on the face of it, something to be said for this view.

Take the case of the simplest form of psychic activity, namely, what is termed a reflex action. Such an action is illustrated by blinking when an object is moved close to one's eye. Other reflex actions are the withdrawal of one's hand when it touches anything very hot, or that stings, the upward kick that one gives with the leg when, sitting cross-legged, the upper one is struck just below the knee. Actions of this sort are automatic, at least they are fixed responses to given stimuli, without any thought being needed to perform them. They take place, in fact, without our being aware that we have carried them out. They are called unconditioned reflexes, because we are born with them, or with the ability to perform them, and do not have to learn them by experience. Another unconditioned reflex—one that is important in eating—is the production of saliva, by the appropriate glands in the mouth, when appetising food is present. This particular reflex is well marked in certain breeds of dogs, for example, bulldogs. This reflex was used by the Russian scientist, Pavlov, in a series of experiments that he carried out about forty years ago.

Pavlov placed food in front of a dog; the result was salivation on the part of the dog. He then placed food and at the same time, presented another sensory stimulus, such as ringing a bell or blowing a whistle. After this combination of events had been repeated a number of times, he found that making the sound alone was sufficient to produce the salivation. A new stimulus had, through constant association with the normal one that produced salivation, served to produce the same result. The same response was thus made to a new stimulus. This was termed a conditioned reflex, because it was one brought about as a result of training or conditioning. Many experiments of a similar nature have been carried out on other animals and humans with similar results, namely, constant association of a second stimulus with

that which produces the unconditioned reflex, will result in the subject responding to the new stimulus precisely as it would have done to the original one.

The results of those experiments led some to suggest that much, if not all, mental activity and human behaviour, is to be accounted for by the building-up of a whole set of such reflexes. There is something in this contention, for it is part of an individual's training to learn to respond to certain stimuli in fixed ways. An obvious illustration is afforded by the words of command used on the barracks square, or by the way in which one lifts the receiver when the telephone bell rings—responses to commands and to signals become almost automatic and we answer before we have thought about the matter. The unconditioned reflex when there is irritation in the nose is to sneeze, but children are taught to associate with the sneeze, the covering up of their nose with a handkerchief. Many illustrations could be given. But even if these be examples of conditioned reflexes, it is still doubtful whether all human behaviour and mental activity is to be accounted for along such lines. If it were, then there would be no sign of choice, we should all act in precisely the same way to the same situation, every time that we were in it.

A related theory of mental activity is that associated with the name of the American psychologist, Watson. He did not specifically deny the existence of mind but he did assert that we can never know it directly, we only infer it, and for practical purposes that is unnecessary. He said that our knowledge of other people's minds is inferred from their behaviour, that is, their speech and movements. I laugh, for instance, when I have a certain feeling, therefore, when I see someone else laughing I infer that he has the same inner feeling as I have when I laugh. There is a good deal of truth in this assertion for we do assume, often unthinkingly, that when another person behaves in the same way as we do, that he must be thinking or feeling in the same way as well. We assume that because a certain action of our own is motivated by a certain idea, that

similar action on the part of another is motivated by an idea similar to that which we have. We cannot always be sure that those assumptions are correct, for behaviour may be designed to deceive; some deliberately conceal their real feelings and motives, some develop "Poker-faces"; others simulate emotions they do, in reality, possess in relation to certain situations. One French cynic wrote "Language is given us to conceal our thoughts". A good deal of such acted behaviour occurs in polite society where it is not always wise or kind to show one's real feelings or opinions.

On the other hand, it is fair to say that similar behaviour on the part of two people does, in general, indicate similarity of mental state. If this were not the case then we should know very little of what went on in the minds of others. We must use behaviour—in the wide sense, that is, including speech and action—to contact other minds and to be contacted. Watson's school is often termed the Behaviourist School.

Obviously, behaviourists and other materialistic psychologists must dispense with introspection since that presupposes a mind that introspects. Psychology thus, for the former, becomes merely the study of behaviour. Behaviourists also must dispense with such concepts as consciousness, instinct, thought, image, sentiment, etc., on the grounds that since such cannot be directly observed there is no need to assume that anything corresponding to them exists. On this theory, thinking is regarded as "talking under one's breath", that is, as movements in the vocal chords and related organs. It is, of course, a fact that we do often talk silently when thinking, but we can think far quicker than we can talk.

If the behaviourists are correct then their doctrines tell us nothing but they merely reflect the condition of the bodies of those who call themselves behaviourists, and, similarly, other theories merely reflect the physical state of those who put them forward, so there is no point in asking which theory is true or not. In any case, the

behaviourist theory, as all materialistic theories of mind, so belittles human mentality and reason as to be unacceptable to most people. If we eliminate mind, then living organisms, human no less than others, must be regarded as automatons.

CHAPTER VII

NATURE v. NURTURE

AN age-old problem that has been much discussed is concerned with the respective parts played, in the type and development of individuals, by nature and nurture. Is heredity or environment the more important factor in determining mental characteristics? On the answer to that question—if definite answer there can be—many things depend. Since environment includes education—both formal and otherwise—it is obvious that a definite answer might alter the whole of our teaching methods both in the schools and the homes. Environment also includes social and economic factors, so that such matters as working conditions, wages, housing, public services, welfare, cultural facilities and the like are involved.

There are those who hold that if we improve the material conditions of life, if we provide better houses, working conditions, improved social amenities, there will be an improvement in individuals. Others, again, believe that in eugenics is the solution to poor stock, low intelligence and mental deficiency. Such people hold that certain persons should not be allowed to breed. Some guidance in the dominant and topical dispute between those who, on the one hand, believe in private enterprise in all matters, and those who, on the other hand, advocate a planned society, could be obtained if we knew, even approximately, the respective importance of heredity and environment.

Until recently there was no real evidence available to enable us to arrive at any conclusion, and even to-day, the evidence is scanty. There are many difficulties in obtaining such data. Psychology is a new science so there are

few records—scientific ones—of mental characteristics of several generations of the same family. There is also the difficulty of measuring mental characteristics; intelligence is almost the only one that can be assessed accurately. Later in this book, something is said about that matter.

There is one general consideration that may be mentioned before we pass to consider some detailed results. That consideration is based on an analogy, it is true, but it is probably a valid one. It is this—we know that we inherit some physical characteristics from our parents. There is the science of genetics which is increasingly able to show what characters are transmitted and how. It is known that some characters are dominant, that is they tend to appear in every generation of a given family. Other characters are recessive, that is, they may appear in one generation and not in another. Some characters are transmitted by one sex only, for example, haemophilia (the blood does not coagulate) is passed on by the female but is only shown by the male. It is reasonable to suppose that mental characteristics behave in the same way, some being dominant, some recessive, reasonable because there is a close connection between body and mind. It is known, for example, that certain types of insanity may be inherited, as are also such characters as a cheerful disposition (possibly due to bodily make-up), deafness, colour blindness and artistic ability.

Obvious examples of what appears to be inherited mental ability occur in English history. One has but to think of such families as the Churchills, the Darwins, and the Huxleys, for in these cases, there have been outstanding individuals in succeeding generations. Another good example comes from the United States where the descendants of a certain clergyman, Jonathan Edwards, were investigated. Records of thirteen hundred and ninety-four of his descendants—extending over more than two hundred years—show that many of them were doctors, clergymen, lawyers, and that none of them was ever convicted of crime. Here, by contrast, are the figures for

another United States family, that of Jukes. The original Jukes was a drunken backwoodsman, who lived more than two centuries ago. A thousand of his descendants were traced and it was found that of that number, one-third died in infancy, 310 were paupers, 440 were physical wrecks and 130 were convicted criminals.

These figures would seem to suggest that heredity is the dominant factor in determining a person's make-up, but there are some points to note. It may be argued that the children of successful people become themselves successful, not so much from what they inherit, as from the environment in which they are brought up, good schools, good home influence. So, at least, would argue some people who do not like to think that one man may be better than another. There is something in the contention, since some who have ability may never have a chance to develop it.

Let us now return to genetics for a moment. All inheritable and transmitted characteristics are carried by the genes which make up the chromosomes or rod-like bodies in the germ cells. Conception occurs by the fusion of a male and female germ cell and that involves the splitting of the chromosomes in each cell and the subsequent re-linkage in the fertilised egg-cell; so that a child will have half its chromosomes from the one parent and half from the other—at least, approximately half. Since each chromosome contains many genes and since the human cell contains forty-eight chromosomes and each chromosome does not split exactly in half, it is clear that many possible combinations are likely. No child will be exactly like either of his parents, nor exactly an average between the two, nor will two children of the same parents be the same, except in the special case noted below, that of identical twins.

Experiments in biology show two important results which are relevant here. These results relate to physical characters but there may be analogues in the mental sphere. The first result is that creatures of different heredity are not made alike by being exposed to the same

environment. This is borne out by a study of children brought up under the same conditions, as in orphanages and boarding-schools. In such places, the children come from different stocks, but the surroundings are the same, yet the differences which were present before the children entered that environment persist despite the uniformity of the conditions under which they live often for many years. Uniformity of environment does not remove individual differences. The second biological result is that heredity differences become more marked as the development of individuals proceeds. This fact is also shown in humans, for example, a number of small babies of different parents, all look very much alike—in fact, they may have to be labelled in a maternity home in order to prevent mistakes of identity—but as they grow up they become less and less alike and they gradually exhibit some, at least, of the characteristics of their parents.

Experiments with humans are not easy, neither is it a simple matter to isolate the heredity and environmental factors from one another. We have noted that orphanages may give us opportunities to study what happens to different individuals in the same surroundings but it is not so easy to know what happens to individuals with the same heredity in different surroundings. In fact, there are very few cases of two individuals having exactly the same heredity—a typical case are identical twins. Identical twins are the result of the splitting, at a very early stage of development, of one fertilised egg cell, so the two individuals produced start off with identical chromosome equipment. Such twins are very similar in appearance and intelligence; they almost think together and feel together. Usually, of course, such twins are brought up together but occasionally they may be separated at an early age so that the two children are reared under different conditions, in such cases we have the circumstance needed for noting the effect of environment on common material. Twenty pairs of such separated identical twins have been investigated in the United States and Canada, by a team of psychologists.

In the case of five of the pairs, one of the twins had a much better education than the other and there was some slight difference in the respective intelligences ; in the case of the other fifteen pairs, although there were differences in the environments of the separated twins, tests showed that there was scarcely any difference between the members of any pair in their mental characteristics and abilities. Different environments did not alter, except very slightly, the inherited similarities.

Further confirmation—although not based on actual figures—of this fact is afforded by two statements made to the Psychology Section of the 1949 meeting of the British Association for the Advancement of Science. Professor P. E. Vernon expressed the opinion that "nature" was at least twice (probably three times) as important as "nurture", and Sir Godfrey Thomson (President of the Section) thought that the general level of intelligence was the factor that owed most to heredity. He added that an individual might fail because of his environment to develop his potential powers.

This last remark leads on to a general but tentative hypothesis, again based largely on reasoning by analogy from bodily characters. It is well known that one does not inherit a disease but only the tendency towards a disease. A person may, for instance, inherit the tendency to develop tuberculosis ; if he behaves sensibly, takes up an outdoor job and does not frequent likely places of infection, he may never actually develop the disease ; if, on the contrary, he works in a stuffy indoor atmosphere, frequents dance-halls and the like, then he may develop it. It may be that something analogous occurs in the mental sphere. We may inherit tendencies to be of a certain mental status, to develop certain abilities, but whether those tendencies become realised or not will depend upon whether the environment is suitable or not. There is some evidence in favour of this hypothesis.

The upshot of the matter is—and any conclusion is bound to be very tentative owing to the present paucity of

adequate data—that heredity supplies the tendencies and trends, both bodily and mental—the raw material, as it were—but that what is made of what is inherited depends on the environment. That obviously means that attention should be paid to selecting good stock and to improving the surroundings. Now we cannot do much other than give advice—which may be ignored—about stock, for if two people love each other, it is very little use to tell them not to marry and have children, even if it is known that one or both is mentally or physically deficient or abnormal. Much can, however, be done in improving social conditions and especially in seeing that the children of parents who are known to be sub-normal, are given every opportunity for development and also that they are kept from that environment which would tend to develop undesirable tendencies or prevent desirable ones from developing.

PART III—APPLICATIONS AND USE OF PSYCHOLOGY

CHAPTER VIII

INTELLIGENCE, TEMPERAMENT, ETC.— MEASUREMENT AND TESTING

INTELLIGENCE tests are being used widely to-day in many spheres, in schools, in the Services and in industry. There has been some difference of opinion as to their efficacy for various purposes, but the criticism and doubt are now dying down in view of the results obtained. To take but one example—in the R.A.O.C., in 1941, before any testing was carried out, the rate of failure in "job selection" on training courses, was thirty-seven per cent. In 1942, after experiments on half a million men, tests were introduced, and the rate of failure fell to nine per cent. Improved tests were introduced later, and the rate has now fallen to two per cent.

What is it that is tested ; in fact, what is intelligence? A rough definition of intelligence is that it is intellect put to use, or applied, and intellect is a comprehensive term for observing, understanding, remembering and reasoning. Individuals obviously differ in their intellectual characteristics. The psychologist is interested in trying to find the causes and effects of these individual differences, and in compiling means whereby intelligence can be measured, or, at least, compared.

Long before the science of psychology came into being, and any scientific attempt was made at defining intelligence, public opinion had tended to classify human beings into several groups, for example:—

- a. Geniuses—those with extraordinary intelligence, men like Plato and Newton, Leonardo da Vinci and Einstein.

- b.* Normal individuals—the great mass of men and women who did their various jobs with average effectiveness. There were variations in this group, of course, in fact each group graded into that above and that below.
- c.* Morons—this was composed of the least intellectually defective persons. People in this group are sub-normal, but can be taught to do simple routine work, to run errands or even care for animals. Many members of this group make quite useful members of society, for they are able to perform tasks which others might think twice about doing; for example, loading refuse-carts or cleaning out stables. When properly trained, such people are more useful than might be supposed, for they are not actually defective in the sense that there is some mental disease or defect; they are just very dull individuals. Some of them may have become so through bad methods of education.
- d.* Imbeciles—this includes those who are more defective than morons, but who are sufficiently intelligent to avoid common dangers, such as getting too near fire, or walking in front of moving vehicles. They can talk fairly sensibly, but are incapable of reading or being taught to read. Such people need fairly constant care and supervision.
- e.* Idiots—these are the people with the most marked mental deficiency; they will put their hands in boiling water; they do not avoid traffic; they can only talk in monosyllables.

Such classification is qualitative and not quantitative. There may be differences of opinion as to how to grade a particular person, so some more definite kind of assessment is necessary, if possible. If such an assessment can be made on a numerical basis, so much the better, even if the grading is only proportional. Such a method has now been evolved. It is not yet fully satisfactory and improvements are made as a result of experience.

TESTING INTELLIGENCE

The first serious attempts to test intelligence in a scientific way were made in Paris, about fifty years ago. This came about because the authorities there were alarmed at the relatively large number of backward children. Some teachers suggested that the backwardness was more apparent than real, and due to inattention and mischievousness on the part of the children (the teachers forgot that inattention is often due to bad methods of teaching). Others wondered whether the backwardness was due to low mental capacity.

In order to try to settle the matter, a noted psychologist, Alfred Binet, was called in and he began research. He soon came to the conclusion that to give a child a single task to perform, and then measure the amount of success, was no real criterion of ability. A child should be given a variety of tasks, since individuals differ in their abilities and skills. Some people who are quite intelligent may not be particularly good at one particular task. A person who is good at mathematics, for instance, might find learning languages difficult, yet that would not mean that the person was unintelligent. After all, mathematics requires reasoning rather than sheer memory, which is more called for in learning languages.

So there came into being the Binet-Simon system of testing, a system made up of a number of tests designed to evaluate different aspects of intelligence. It was soon realised, too, that tests of graded difficulty were needed, for Binet was acquainted with the fact that children increase in mental ability as they grow up. The easiest tests were so arranged that they were just outside the reach of three year olds, but just within the power of four year old children, and so on, up the scale. It took many years before a satisfactory series of tests was compiled. These tests have been constantly revised in the light of experience. In one recent revision, for instance, the investigators collected thousands of possible test items, and

then tried out the most promising ones on fifteen hundred subjects, who ranged from the pre-school stage to adulthood. In this experiment, Binet's criterion was used, namely, that intelligence increases as a child grows up.

If a set of tests is passed by a few of the seven year old children, by about half of the eight year old children, and by practically all the nine year old children, then such a set is a good one for indicating a Mental Age at the eight year old level. From the results obtained with fifteen hundred children, the test items were weeded out, and four hundred items retained for a second experiment. These were then tried on three thousand white Americans, aged two to eighteen. The aim of the experiment was to improve the efficacy of measuring Mental Age.

By way of illustration, here are a few of the items, or tasks, used by Binet and his followers in assessing Mental Ages:—

Three year old level —children should be able to string at least four beads in two minutes.

Six year old level —children should be able to notice omissions in pictures of human faces, from which an eye or a nose had been left out.

Nine year old level —children should be able to tell how wood and coal are alike and different.

Fourteen year old level. —children should be able to explain the psychical absurdity in a certain picture.

Adult level. —out of forty-five words given, the subject should be able to define at least thirty words.

These may seem to be arbitrary standards, but they are not so in reality, for they—and other similar tests—are based on the ability of average children at the different ages.

There are also performance tests, for example ; for young children the fitting of blocks into appropriately shaped holes ; the shortest path through a drawing of a maze. There are verbal and arithmetical tests, for instance—pairs of words are given, such as “ascend—rise”, and the subject is asked to mark off whether the words are of the same or opposite meanings. Of course, such tests depend on knowledge and are, therefore, not tests of pure intelligence.

Alertness may be tested in this way. A row of letters is printed on the test sheet, and the examiner may say something like this: “When I say—‘Go’ cross out the last letter in the row, circle all letter F’s and underline the two letters next after K” and the subject is allowed ten seconds in which to comply with the instructions.

Still another type of test is the continuation of a series of numbers, for example:—

1	3	2	6	3	?	Answer 9
49	36	25	16	9	?	Answer 4

As already stated, test material should be varied ; there should be verbal, numerical and spatial items, for instance, and they should be so devised as not to be too dependent upon actual knowledge. It may well happen that one child, whilst not being more intelligent than another, may have learned more. Now if such a child were given tests which depended on knowledge, it would score more than the other child, but the results of the tests would, in this case, give a false result.

Intelligence is not merely the ability to apply knowledge which has been accumulated as the result of past experience and learning. It consists largely in the ability to see relations, and to select those that will be of use in the solution of a given problem or task.

MEASURING INTELLIGENCE

After the subject being tested has completed the tasks set him, then the number of items in which he was successful gives his raw score, but those marks are not much good

as they stand. It is also necessary to know how one individual compares with another.

Binet introduced a measure of comparison or measurement which is known as Mental Age (M.A. for short). First of all, as many children as possible were tested as near as possible to their eighth birthday, let us say. The average scores for such children would give the eight year old capabilities. Similarly, with other ages. A raw score obtained as above, can, however, be translated into a Mental Age, for example, if a child of eight makes a raw score equal to the average score for eight year old children then his Mental Age is eight. If, on the other hand a child of eight only makes a score equal to that of average seven year old children, then his Mental Age is seven. Mental Age, as such, does not tell us how brilliant, or dull, a child is. We need the relation between Mental Age and Calendar Age.

A convenient and usual way of expressing this relationship is to divide the Mental Age by the Calendar Age, and call the answer the Intelligence Quotient, for example:—

- a child of M.A. 8 and C.A. 12 has I.Q. 0.67
- a child of M.A. 8 and C.A. 5 has I.Q. 1.6
- a child of M.A. 8 and C.A. 8 has I.Q. 1.0

In practice, the figures obtained by the division are multiplied by one hundred, in order to eliminate the decimal points, that is Intelligence Quotient of 1 is more usually expressed as one hundred, and such an Intelligence Quotient is, of course, average for the given age.

It is clear from the foregoing that Mental Age is a measure of actual intelligence, whereas Intelligence Quotient is an indication of brightness or otherwise. It should also be obvious that although an individual's Mental Age increases as he grows older—otherwise he would not be quite normal in intelligence—his Intelligence Quotient may not increase, in fact, it probably may not do so. If a child's Intelligence Quotient remains fairly con-

stant around one hundred, then he is increasing in intelligence at the average mental development.

An interesting point is the distribution of brightness and dullness amongst people. We need to know the range and distribution of Intelligence Quotients. Tests on three thousand American children, aged two to eighteen, gave these results:—

- 3 per cent had I.Q.'s over 130
- 23 per cent had I.Q.'s between 100 and 109
- 23 per cent had I.Q.'s between 90 and 99
- 3 per cent had I.Q.'s below 70

Some tests carried out on Scottish school children a few years ago showed these figures:—

- 2.5 per cent of the children had I.Q.'s over 130
- 2.5 per cent of the children had I.Q.'s below 70

that is, exceptionally high or exceptionally low Intelligence Quotients are rare. Most individuals fall within the 90 to 110 limit.

It is interesting to note that the Scottish tests mentioned above showed that there has been no decline in the average intelligence since 1932, when a similar series of tests was carried out, but they did show that children of large families tend to have lower Intelligence Quotients than children from small families. This may be connected with the fact that large families are, to-day, more common in the lower strata of society than in the higher.

ADULT INTELLIGENCE

Several interesting questions now arise, namely, Does an individual's intelligence continue to develop as he gets older or is there a limit to its increase? At what age is the level of adult intelligence reached?

These are two difficulties attendant upon testing the intelligence of adults, neither of which arise, to the same extent, in the case of children. There is, first, the difficulty of formulating adequate tests, because adults specialise so much more than children do. It is not easy to find a group of adults the constituent members of

which indulge in so many activities in common, as a group of children of a given age and in a given school class do. This means that some adults will pass certain tests better than others, not necessarily because they are more intelligent, but because their special work has given them skill in particular ways. The second difficulty is that of obtaining a fair sample of the population. This sort of problem turns up in connection with "Gallup Polls" and other attempts to discover popular opinion. What is a fair sample of the population? An office staff? A works personnel? Townsfolk or country folk? and so on.

Under conscription, it may well be that the Services represent a good cross-section of the community. Tests are now given, and have been for some years, to all recruits as they begin training, in the British and American Services. Some of the results obtained are rather surprising, and have been widely publicised. During the war, for instance, it was found that the average Mental Age of recruits in the U.S. Army was thirteen. That seems a very low figure, but it needs to be remembered that tests show that the maximum of intelligence, as such, is probably reached at about the age of fifteen to eighteen years. There is little, if any, increase in an individual's intelligence after eighteen, so we may say that a Mental Age of eighteen represents an adult Mental Age. If allowances are then made for slow developers and for the 50 per cent or so of the population whose Intelligence Quotient would never rise above one hundred, then an average Mental Age of thirteen is not so bad as it seems at first sight.

Of course, to say that an individual's intelligence does not increase after the age of eighteen, does not mean that we do not learn after that age, far from it. Hearing does not cease when growth ceases. The individual who uses his intellectual endowments can—and should—go on learning for many years. It needs to be remembered that intelligence and knowledge (result of learning) are not the same. If the Mental Age maximum is reached

sometime in the late 'teens, then since Intelligence Quotient = $\frac{\text{Mental Age}}{\text{Calendar Age}}$ it is clear that the intelligence of an individual would decline as he grew older. Such is not the case. It is, therefore, customary in assessing the Intelligence Quotient of adults, to take fifteen as the Calendar Age of all adults, and so long as a person's test score remains the same, his Intelligence Quotient is considered to be the same, even though there may be several years' interval between sets of tests.

VARIATIONS IN INTELLIGENCE

A good deal of work has been carried out, especially in America, on the way in which intelligence varies with different occupational and other groups. This work shows that children do vary in intelligence according to the occupation of their parents. The following are some figures (quoted by R. S. Woodworth):—

<i>Occupation of Parents</i>	<i>Average I.Q. of Children</i>
Professional classes	116
Clerical and skilled trades	107
Semi-skilled workers	99
Casual labourers	96

It should be noted that the figures in the right hand column are averages. There is a range in Intelligence Quotient among children of each parental occupational group, which is as large as that for the population in general. Bright and dull children occur in each group. These differences in Intelligence Quotient—dependent on parental occupation—are not due to differences in educational systems; since schools give knowledge—or should do—and knowledge is not the same as intelligence. The higher Intelligence Quotients of the children of professional men may be due to better stock, or to the fact, noted above, that children from smaller families are usually more intelligent than those from large families, and larger families usually occur amongst the lower grade workers.

It has also been found that the average Intelligence Quotient of children of white Americans, Chinese and Japanese is about the same, in the U.S.A. The children of American Indians and Negroes have lower average Intelligence Quotients. The children of German and Jewish immigrants have a higher intelligence than the children of French and Italian immigrants.

VALUE OF INTELLIGENCE

The fact that a person possesses a very high Intelligence Quotient is, in itself, no guarantee that the person will achieve outstanding success in any particular activity, service, art, letters or business. There is an attendant at a Hollywood garage, for example, who has been tested many times and each time has produced results which show him to have exceptional intelligence. He showed a very high Intelligence Quotient, when tested at school, yet he is still a garage-hand. Dr. Lewis Terman, an American psychologist, has carried out a good deal of work in intelligence testing, and he has found that of the highly intelligent children so far studied in American schools, about one quarter fail to make the success in later life, which their high intelligence would indicate they should.

In addition to intelligence, a person needs special ability in some direction, the ability to concentrate, confidence in one's own powers, ambition, great fondness for some particular subject, and that rather elusive something called "drive". Those who really succeed in life are often those with what are called "one-track" minds, that is, those who concentrate all their energies and abilities on one particular subject. Such people usually have one over-riding ambition. On the other hand, it is true to say that a person is not likely to make a success in any activity, unless he does possess a fairly high intelligence.

We cannot now investigate the minds of geniuses of the past, but such evidence as we have does show that such people were very bright as children.

Knowledge of one's intelligence is obviously of great value in choosing an occupation. Parents may, for example, wish their son to enter one of the professions, either because father was in it, or because of the "snob value" of such an occupation. But it may be that, even though they can afford to give the boy every educational chance, he will still not succeed simply because his Intelligence Quotient is not good enough for the particular profession.

Incidentally, this variation in intelligence is an argument against raising the school-leaving age too high. There are many children who will not profit from an extra year or two in school, and who would be far better occupied in learning a trade or skill more fitted to their intelligence. Allow the brighter children all the opportunities possible, by all means. It might be better for the country, and we might get a better return for the money spent on education if a greater proportion of the money were used to give the really intelligent children more education, and the average or duller children less of an academic nature. Unpalatable though it may sound, there are many children who will not profit from education above a certain level. We are not all born with the same amount of intelligence, despite the egalitarianism of politicians and others.

Many men and women are misfits in their work, "square pegs in round holes", just because they did not know their own intelligence, and the intelligence needed for the particular job. Obviously the person of rather low Intelligence Quotient will not succeed in a job that demands intelligence slightly above normal. On the other hand, if a person of high intelligence is in a job where the work does not demand much intelligence he will become disgruntled, even "nervy", and so his work will suffer. Those with high intelligence need work in which they can use their minds as fully as possible, if they are to be successful and happy.

There is just one small point to be noted about testing intelligence. Children or adults who are subjected to

frequent tests may become "test sophisticated". It has been found that when a group of children is regularly tested, a slight rise in Intelligence Quotient may occur, whereas when a group is only tested at very long intervals, then no such rise occurs.

Testing and measuring of intelligence is, as stated, of value in guiding children and adults in the selection of occupation, but other factors and abilities need assessment, too, for we have noted above that intelligence is not the only factor making for success and happiness in one's work.

TESTING OTHER MENTAL ATTRIBUTES

It has been noted above that intelligence is not the only mental quality that is important in assessing an individual's likelihood of success and happiness in any given occupation. It is obvious that a certain standard of intelligence is needed for some occupations, for instance, a high degree of it is required in the professions. But such other attributes or qualities as temperament, honesty, social sense and responsibility, "drive," manual dexterity, power of visualisation (imagination), the type of memory, constructive ability, and so on, are all important in various occupations.

Unfortunately, it is not so easy to test such qualities as those mentioned above, and it is almost impossible to grade people, with regard to them, in the way we do with intelligence. However, a good deal of work has been done in this direction since knowledge respecting such qualities in individuals is important in vocational guidance, and such is needed, since children are not always good judges of what they are fitted for—nor are their parents for that matter. Often a child is expected to follow on in father's business or occupation, whereas he may not be endowed with necessary qualities or abilities to make a success of it. The result may well be to create a dissatisfied or frustrated individual, and that means poor work, or at least, work which is not as good as it might be.

Individuals often feel that they would like to take up a

certain occupation without really realising what the work entails and what qualifications are needed. Two illustrations will suffice. A young man was very keen on becoming a surveyor. Luckily, tests were given to him before he began training. They showed that he had little mathematical ability—a very necessary attribute in surveying. The youth was questioned as to why he was so keen on the particular occupation. It turned out that it appealed to him because it was an outdoor job—or that is what it seemed to be to him. After all, we only see surveyors when they are out and about. He did not realise there was a good deal of office work as well, and that most of that was of a mathematical nature. When these facts were put to him, he decided to try something else that was really outdoor work.

The second example concerns a young graduate with a very high Intelligence Quotient, who felt that the Church offered him the means of using his knowledge and reaching people through preaching. He duly entered the Anglican ministry—for a few years the novelty of the new profession, the necessity of having to learn a new technique and meeting new people, served to keep him interested and keen, or at least, fairly keen. Then gradually, and especially when he became an incumbent, there came disillusionment. He began to realise that the major part of a vicar's life consisted in helping with the "chores" in an overlarge vicarage and garden, in a perpetual struggle to raise funds, running whist-drives and socials, and being polite—or trying to be—to village gossipers and "bores". There was little enthusiasm, on the part of his parishioners, about listening to his sermons, which were good from an intellectual point of view, nor was there the opportunity of study in the quiet book-lined study, which he had mistakenly supposed was one of the things which a country clergyman could enjoy. He had only seen the profession from outside, or through the eyes of those who wrote of clergymen in a day now past. The result? Practically a nervous breakdown through sheer boredom

and lack of occasion to use his undoubtedly high intelligence. A psychiatrist, to whom his doctor sent him, advised the development of other interests and spare-time occupation in which he could make more use of his mind. Luckily, he was able to follow the advice, so that a complete breakdown was averted.

How do psychologists set about testing these qualities of mind to which reference has been made? To take temperament first. We have already noted that the usual classification of temperament is that due to Jung, namely into the two types of extravert and introvert, and various characteristics of members of the two types have been given on page 89. Observation of individuals and questionnaires put to them should enable us to ascertain to which type an individual belongs. It is this typing which is important. It would obviously be foolish to suggest to a person of introvert type that he became a commercial traveller or an hotel receptionist. A job that would suit a person of slow phlegmatic type would be irksome to a vivacious quick thinker.

There are several ways in which one can test honesty, for example, a list of fifty book titles was given—some of them purely fictitious—and the pupil asked to mark those that he has read. It may be that in a desire to show off, the person ticks off the titles of books not actually read, including titles of some of the fictitious ones. A series of cards showing pictures of illegal and immoral activities (a thief at work, a man beating a dog, a child pulling a fly to pieces, etc.) is shown and the subject asked to arrange them in order of heinousness.

Mechanical ability may be tested by giving the subjects the parts of a few common objects, for example, a bicycle-bell, and asking them to assemble this without telling them what they are supposed to make. Incidentally, it is doubtful if mechanical ability is developed until an individual attains the age of twelve or thirteen. Constructive ability can be tested at quite early ages, however, by watching children playing with bricks or, at a slightly later

stage with Meccano. Creative imagination can be assessed in several ways. Subjects may be given a picture and asked to write a story about it, or they may be asked to write out an answer to a question such as "What would happen if the temperature of the earth fell 20 degrees (or men could read each other's thoughts, or always told the truth, etc.)?"

It should be noted that it is not only necessary to test the abilities of individuals in order to find out in what occupation they are likely to be happy and successful; it is also necessary to determine what are the abilities needed for a particular occupation.

That vocational guidance and testing of vocations is worthwhile is amply proved. It is shown, not only by such an example as that of the R.A.O.C. (already mentioned), but by the fact that many large firms now employ psychologists to help them. Business men are hardly likely to pay psychologists unless they feel they are getting some return for their money.

Of course, it is not always possible, for various reasons, for an individual to enter the profession or job for which he is best suited. There are bound to be cases in which an individual's work does not afford him the opportunity to give full expression to his abilities and inclinations. In such cases, it is a help—to avoid frustration and discontent—if the individual can choose a leisure time activity or hobby that does give him that opportunity. It may be, for instance, that a sedentary indoor worker would like an outdoor occupation. Such a person can always take up hiking or gardening or some such leisure time hobby. If a job is of a repetitive and routine character, then it may be that its holder might care to find an outlet for his motives of achievement and creativity in a hobby such as model engineering or writing.

In any case, hobbies are good things, and, within reason, the more one has the better. They cater for interests and abilities, not satisfied or exercised at work and they serve to give zest to life after work is finished. How often does

one notice that the person whose work is his sole concern loses his interest in, and hold on life when he has to retire! It is noticeable that those who have hobbies, or who can continue in their work stay longer alert and alive (in more senses than one).

APPENDIX

TYPICAL QUESTIONS FROM AN INTELLIGENCE TEST FOR CHILDREN AGED ELEVEN

1. It is winter in Australia when it is summer in England. When does Christmas Day occur in Australia?
2. A hen is related to a chick as a lion is to which of these?
 - a. Cat ; b. Cub ; c. Kitten ; d. Duck.
3. If I have more than half a crown I shall travel either by taxi or by train. If it is fine I shall travel either by train or by bus. It is fine and I have five shillings. How shall I travel?
4. What number doubled is 3×6 ?
5. Write down the next number in the following series—
 $2, 4, 7, 11, 16, \dots$
6. Write down the next number in the following series—
 $1\frac{1}{4}, 1\frac{1}{2}, 1\frac{3}{4}, \dots$
7. Which of these does a schoolboy always have?
 - a. Pocket-knife ; b. Satchel ; c. Ears ; d. Pencil.
8. Insert the missing figure in the magic square—

1	6	5
8	4	
3	2	7

9. A man bought some cows for £150. He sold them for £180. He gained £10 a cow. How many cows did he buy?
10. What is the eleventh letter of the alphabet?

TEST FOR MENTAL TYPE (*after Binet*)

Ask subject to write out list of twenty words in order that they occur to him. Aim of test is to discover whether subject is imaginative, logical or matter of fact. If list contains many words referring to immediate environment then this may be due to lack of imagination or to living close to things; if many of the words refer to the subject this indicates strong ego-instinct; many abstract or general words shows a reasoning mind; words referring to things not within subject's experience show imagination; logical connection between words shows logical mind; and so on.

TEST QUESTIONS FOR DETERMINING TEMPERAMENTAL TYPE

Ask subject to answer "Yes" or "No" to the following questions:—

1. Do you like talking or performing before a group of people?
2. Do you always try to make others agree with you?
3. Do you make friends easily?
4. Are you at ease with strangers?
5. Do you like or try to take the lead at a social gathering?
6. Do you worry what others think of you?
7. Do you tend to question the motives of others?
8. Do you suffer from a feeling of inferiority?
9. Are you easily embarrassed?
10. Are your feelings easily hurt?

"Yes" answers to first five questions show extravert type.

"Yes" answers to last five questions show introvert type.

CHAPTER IX

EDUCATION

A GOOD deal has been said, in passing, about education in the wide sense of the term. It may be useful to recapitulate some of the points mentioned and to expand some of them or make them more explicit. It must be obvious that new ideas and knowledge about the mind must affect the methods adopted by educators—or should do. Something has been done to devise methods of education which shall fit in with such knowledge or theories.

An example of a rather extreme type of method is that which is termed "free discipline", under which children please themselves as to what they do and when they do it. Educators who use this method are merely putting into practice the theory or knowledge that repression is harmful. They are, however, forgetful of the further facts that there is another alternative, namely, sublimation, and that, the world being as it is some discipline is necessary. Sooner or later the child will have to leave school and enter a world in which he cannot always have his own way. The sooner—in reason—that some self-control is learned the better. The results otherwise may be unfortunate.

Another point which is relevant here, is this—children may feel inclined to act in a certain way, in accordance with instinctive desires, but to allow them so to act may harm them. Allowance must also be made for those children, and there are some, who are abnormal in various ways. If children, for instance, who are slightly mentally defective were allowed to do just as they pleased then, obviously, they might come to physical harm.

Too much discipline is, as we have noted, dangerous in that it may set up mental complexes which will affect for ill the whole of the individual's life. One of the great problems in this connection is to strike a balance, and such a balance will vary with individuals. It is impossible to have rigid rules where persons are concerned, since no two persons are alike. A code of discipline that may work well with one person, and produce no obvious ill results, may not work with another person. Individual differences of temperament and intelligence need attention and guidance.

An interesting commentary on the fact that over discipline of a certain sort may do harm, is afforded by the fact that to-day there are fewer mental breakdowns, and less neuroticism amongst women than there used to be. This is probably due to the fact that the methods used in girls' schools in recent years are much freer than those that were employed in the past. The attitude adopted towards sex, for instance, is a much more natural one. There was a tendency to treat girls in girls' schools rather as though they were nuns and to bring them up as strictly.

Education is concerned not only with learning—new habits, accumulating facts and knowledge, acquiring skills, learning the scientific method of attacking problems—and expression, in word and behaviour—it is, or should be concerned also with the development of personality, with all that determines a person's character and conduct, at work or in leisure, as an individual and as a member of society. Some would maintain, in fact, that the most important task of education is to fit a child to take his place in society. This is not easy, for as we have seen, we are all individualistic; the dominant instinct is the self-instinct. The need and value of co-operation has to be taught.

The educational process is thus something, which, whilst it includes the formal education received in schools, includes more than that. It includes the training

received in the house, before, during and after the school training. Home influences are very great. It is sometimes forgotten that a child who attends a day school spends far more time out of school than it does in it. It is hardly fair, therefore, to blame teachers for what a child is and does—yet often such is done!

And now, let us consider some of the points mentioned above in greater detail. First, the important and vital point that individuals differ. The inclinations and learnings of a child will be the result, to a very large extent, of his heredity and early home influences, just as his actual capabilities—his intelligence, temperament and other mental characteristics—are the result of heredity and early environment. This fact makes it all the more important that parents should know something of the child mind, and realise that children are individuals to be developed and given opportunities for self-realisation, and not so much clay to be moulded according to their—the parents—wishes. It is a sad commentary on the lack of realisation of this fact that so much is done these days to help parents in caring for the physical side of a child's early life, and so little for its mental life. There are clinics and literature in abundance available for the guidance of physical care, but all too few to help parents with regard to the mental care and development of their children. Yet this latter work is all important, for errors made in infancy affect, for good or ill, the child for life, as we have noted earlier.

The effect of others in affecting the interests and inclinations of a child can also be noted in school life. Teachers may affect the development of the immature minds of children far more than they sometimes imagine. This is done not merely by direct teaching and suggestion—indeed if the hoped-for results of that suggestion materialised, they would be aware—but indirectly, too. After all, the teacher is a person in authority, and what he does and how he does it has an effect on the children under him. One outstanding proof of the way in which

teachers can influence children, and bring about a permanent attitude to life is afforded by the effects of mass education in totalitarian countries.

So far as formal education is concerned, there is another factor that is unfortunate in regard to the fact that individuals differ. Formal education is systematised and there is a tendency, in fact more than a tendency in some places, to think that the child should adjust himself to the system, rather than that the system should be so flexible as to allow for individual differences. There are merits in a universal and free state educational system, but it does undoubtedly tend to level men and women and to curb adventurous spirits. It also tends to make people think and act alike, since, within broad limits, the same subjects are taught in much the same way in all state schools, at least in the elementary ones. Now, since the material—the children—put into the educational machine is not uniform, any attempt to produce the same end product, must inevitably mean that some children will have been very much altered and remoulded. This cannot be good for the community, since diversity is a good thing. We do not want a whole mass of people thinking alike, acting alike, all of the same type—such a society would be more like a colony of ants than one of humans—what is wanted is a society in which individuals differ; each developing their special talents and aptitudes but pooling their resources and gifts for the common good. There must be room for opportunity for the adventurous and the highly talented.

There are other defects in the formal educational system, too—on the whole it is true to say, for instance, that the methods used in many of our schools tend not only to stifle individual initiative but curiosity as well. Most children leave school far less curious than when they entered it. How often does one hear a young person say that he has finished learning, because he has left school! There is the tendency to think that the formal learning in school is all that matters. Those who are concerned

ment of body and mind is uneven ; there are periods of maturity alternating with periods of infantile characteristics. Sometime during this phase there may be a development of self-consciousness, the "awkward age". Activities become increasingly purposive, therefore there is need for teachers and others to help in directing, for the child has no inhibitions, those only come through experience and the setting up of ideals. The child is very curious and imaginative, and it is bad to thwart expression of these characteristics. Towards the end of the phase there often come signs of hero-worship stage, the "gang" stage, collecting stage and the development of the critical faculties.

Puberty phase—ages 11—14 (or more). On the physical and emotional planes there is a development of appreciation of sex, a gradual realisation of sex-differences ; on the mental plane, there is increase in the ability to reason, to generalise, a growing interest in words and ideas, a development of the critical faculties. Dull children need careful handling, as difficulties at school may lead to hatred of books and all that they stand for ; bright children need some checking.

Adolescent phase. During this phase there is, on the emotional plane, a search for love, and, on the intellectual plane, a formation of the idea of law. Family ties may become burdensome and there may be rebellion against what are deemed to be unnecessary restrictions, this may take the form of aggressiveness.

What needs to be remembered is that the child is an individual, right from the start ; it is a responsible organism, not just so much clay to be moulded according to the wishes or hopes of the parents. Every child starts life with certain potentialities, certain characteristics, a certain balance of instinctive urges—education and training should aim at developing those things, and not at trying to alter the personality of the child to fit what the parents or the teachers want.

CHAPTER XI

PSYCHOLOGY OF THE SEXES

HERE and there in the preceding pages we have noted differences between the sexes but, on the whole, we have written as though there was little mental difference between men and women. As a matter of fact there is little difference despite popular ideas to the contrary. Partly on account of those ideas a good deal of work has been done on the mental characteristics and abilities of men and women in order to prove or disprove these ideas. Before we pass to the results of this research one general point may be made.

It has already been noted that the life of every human is directed towards the goal of increasing his or her personal importance, of seeking "to shine". The ego-instinct is the strongest. It may be that this striving is unconscious. We all know people who would indignantly deny that they were trying to out-do their fellows. Yet, even the shy and retiring person may be using just that method of being different and so attracting notice, or hoping to do so.

Our civilisation is a masculine one. This is well illustrated in the still general belief that a man can do things that a woman cannot, at least, if she is to retain the approval and esteem of her fellows. A child, growing up in such a social environment, naturally gets the impression that a man is superior to a woman, in some sense, for man is physically stronger, he is freer, and he has more privileges. The result is that the child's concept of masculine will include what is above, higher and more desirable, whilst his concept of feminine will include what is below, lower and less desirable. We all know that one

of the most hurtful things one can say to a small boy is that he is acting like a little girl.

Adler, therefore, held that one of the dominant fictive goals which a person sets himself is what he terms the "masculine protest", well exemplified in the frequently heard remark of a small boy "I'm going to be a real man when I grow up". It is not only males who have this fictive goal, however, for some females have it, too. Such are the girls and women who are unwilling to accept the role which society, as at present constituted, lays down for their sex. Such are the women who rebel against the conventions that govern sex relationships; the women who invade spheres hitherto considered exclusively masculine. The fictive goals, together with the life-style, form a person's character.

The essential difference between male and female is the difference in the reproductive organs and glands. This primary difference brings about secondary differences in body and in mind. Some of the secondary bodily differences are the development of the breasts in the female and the more marked hairiness of the male body. On the mental side, the differences between the sexes are more apparent than real and are due to conditions other than the mere accident of sex. There is little doubt that much of the apparent mental disparity between the sexes is the result, not so much of a natural difference, as of social influences and occupation. We have already noted that, when considering heredity, that a tendency may be present but may not be developed owing to circumstances. So with the sexes, especially in the past. The average woman has not been, until recently, given the same educational chances, or allowed to take up the same occupations as man, with the result that she has not been able to develop latent tendencies and abilities.

One often hears such a question as "Why have there been so few women scientists?" The answer is, not that women do not make good scientists—those that have had the chance have often done as well as the men—but that,

in the past, at any rate, science was not considered to be a suitable profession for a woman. Those few women who did defy convention and broke into preserves considered exclusively masculine, often succeeded in making a name for themselves. Amongst such have been Herschel, Madame Curie and Fraulein Meissner. For some types of work, especially where careful routine tasks have to be carried out, a woman is better than a man.

Popular belief has usually held that men are more active, women more passive; that men are inventive and creative, whilst women are receptive; that men are more rational, and women more intuitive and emotional; that men are more selfish and ego-centred, whereas women are less selfish and care more for their families than for themselves, especially for their children hence the phrase "mother-love". But what are actual facts as shown by scientific investigation and measurement, when such can be made? Some answers to this question are set out in the table below:—

Character.	Male.	Female.
Physical strength.	Average man stronger.	Average woman weaker.
Muscular skill.	Average man slightly better than average woman.	
Sense of touch.	Average man less sensitive than average woman.	
Sense of smell.	Little difference between the sexes.	
Sense of taste.	Man slightly better.	
Hearing and sight.	Little difference between the sexes, but	women better on colour naming.

Character.	Male.	Female.
Memory.		Women better, especially for mechanical retention.
Imagery.	Men tend to think in words.	Women tend to think in pictures.
Creative imagination.	Men more fertile and original.	Women better in routine work.
Intelligence and reason.	Little difference	between the sexes. Women appear less rational because more emotionally disturbed and because of type of imagery.
Emotions.	May be deeper.	More superficial and easily roused.
Other instincts.	Tend to be aggressive, pugnacious and more curious.	More submissive.
Sex instinct.	More men than women are abnormal.	Such women as are abnormal are more over-sexed, or under-sexed than men, but fewer departures from the normal.

Note:—The differences between the sexes in almost all the above mentioned characters is no greater than the differences between individuals of the same sex in respect to any character. It will also be noted that the remarks above refer to the average man or woman—mythical characters. Some women, for example, are more curious, or more creative, or even more pugnacious than some men; whereas some men are more submissive, or less rational.

than some women. Such characteristics more markedly shown by one sex than by another are those connected with the emotional rather than with the intellectual side of the mind, and those, in turn, are connected with the essential sex differences, structural and glandular—they are the more primitive characteristics. At the purely cognitive level of the mind it may be said that there is little difference between man and woman and such small differences as there are will tend to disappear as women become increasingly emancipated, as they receive the same education as men and are allowed entry to the same professions and occupations.

The subject of the *relationship* between the sexes and their attitude, conscious or unconscious, to one another, is a developing branch of psychology and one in which theory outruns real knowledge. Yet sex psychology is obviously of prime importance. Much of the behaviour of the sexes towards one another has, in the past, been determined and conditioned by social convention and moral code—codes formulated by men, since our civilisation has been a masculine one, and, therefore, codes which favoured the male point of view. There has been little scientific knowledge available on which to base a rational sex behaviour—if that is not a contradiction in terms! So much of human happiness depends on a right understanding of our fellows, especially those of the opposite sex, and on a right understanding between them, especially in the most intimate of physical relations, that it is clear that a better understanding in such matters is of vital importance.

Much unhappiness, especially in the marriage relationship, for example, is due to lack of knowledge of one sex by the other, not merely physical knowledge but mental. The popular beliefs about the sex differences mentioned above are still widely held and acted on, whereas most of them are untrue in fact. Few husbands, for instance, consider that their wives want much else than a home and children, with the rather restricted outlook and opportunities consequent thereon; if the wife with a husband

of that type is of high intelligence, creatively-minded and curious, then obviously for her to live under such restrictions there must be a good deal of repression and consequent mental unhappiness. A breakdown may result and, more often than not, the husband would never dream that his believed kindly and normal attitude had been the cause of that breakdown.

Another frequent source of unhappiness between husband and wife—although this may also occur between any two persons—is the failure of one of them to appreciate the effect that unconscious elements play in behaviour. Take an example—a man may, for various reasons, have developed slight neurotic symptoms, e.g., a touching neurosis (an urge to touch certain objects, or a particular object in a certain order). Now it is no good for his wife nor anyone else, to tell him to “shake himself out of it”—the cause of the neurosis is in the unconscious and must be sought for by proper means, if a cure is to be effected. The compulsion is irrational, not conscious and the man may realise that he is acting foolishly, but that of itself will not bring about a cessation of the touching. Individuals often develop phobias of various kinds—fear of certain things or actions, dislike of certain colours or foods, are instances—and these may, again, be misunderstood.

The subject of sex psychology is, however, too complicated and theoretical for a lengthy discussion here and the reader who is interested is referred to the bibliography for the titles of books for further reading and study at the end of the next chapter.

CHAPTER XII

USES AND VALUES

WE have now come to the end of our short and cursory survey of the science of psychology, and some sort of a summing-up is indicated.

To the questions, what is the value and what are the uses of psychology, some answers have already been given in passing. It should be fairly clear that any science which gives us fuller knowledge of the working of human minds must be useful. The mind is the instrument we use in all our dealings with the world of men and things; insight into its workings should, therefore, help us to use that tool the more effectively. The old Greek adage, "Man, know thyself", is only now becoming possible of realisation.

We have noted, in the preceding pages, that observations and experiments have shown that many opinions and ideas about the mind, some that have been held for very long, are fallacious and misleading. Women, for instance, are just as intellectually able as men if they are given the chance, the chance so often denied to them in the past; we are prompted to action far more often by emotional considerations than by rational ones despite the fact that we term ourselves *Homo sapiens*; improvement of the environment is in itself no guarantee that the stock, or the mentality, will be improved; improved surroundings and opportunities will only permit the development of what is already latent; there is more in the sub-conscious part of the mind than in the conscious part. We are only aware of one idea at a time.

On the other hand, certain beliefs about the mind, beliefs enshrined in proverbial sayings, have been found to contain a good deal of truth. One such is "the child's the

father of the man", for we know now how important are the early years of an individual's life in forming his life-style. "All work and no play makes Jack a dull boy" is another saying that has been proved true. Constant attention to one subject or occupation does not give the opportunity which the many aspects of mind need for their development and expression.

We have noted, too, that the analysis and classification of mental characteristics such as intelligence and temperament is of value in vocational guidance and in preventing, therefore, much frustration, with its consequent effects on the quantity and quality of work performed. There is less chance of "square pegs in round holes" if adequate testing is carried out before appointments are made. It is clear that a better understanding of the way in which the mind works will enable us to deal with our fellow men and women the better.

We have learned that our springs of action are independent of—in the sense of not being dependent on—our reason. Much of our behaviour is motivated by causes and inclinations that lie under the level of consciousness. Of course, when we are asked to explain, or to justify, any particular action we are usually ready with an answer that purports to be rational, but such an answer is rarely, if ever, true—it is a rationalisation, something thought up *after* the event which it is supposed to justify, whereas if the action had really been motivated by reason, then the thinking would have been done *before* the action. Instinctive urges and emotional factors play much the largest part in motivating human actions and our attitude towards persons and things.

We have learned how important the early years of life are and how an understanding of that can help in reducing the chances of producing complexes through undue repression—complexes which may have permanent ill-effects on the mental life, or even on the physical—although some discipline, preferably self-discipline which is the highest form, is necessary in order to prepare an individual for

adult life, in which he will not be able to please himself overmuch. But there is need to be careful about it. One way is to teach the alternative means of expression of instinctive drives known as sublimation and direction.

We have learned that all men and women are born with the same instinctive urges—although in slightly varying strengths—that such are perfectly natural, being part of the human make-up, and that much harm can result from foolish prudishness and repression, especially in regard to the sex instinct. Such knowledge helps us in understanding the behaviour and reactions of others.

There is yet another thing we may have learned as we went along—we have not mentioned it explicitly, but it has been implicit in much that has been written—let me illustrate it by a digression. We may say, roughly, that there are two main ways of looking at anything, at a problem, for instance. Those ways are the cognitive or intellectual, and the orectic. The cognitive way is concerned with "Why?", with reasoning, knowing, perceiving, with explanations and relationships; it is, in fact, the scientific approach. The orectic way is a general term for the feeling, emotional and willing aspects of the mind, the moral judgment. We have long since learned to look at the world of Nature and of things in the cognitive way, although there was a time when such was not done. If your car refuses to start, it is no use feeling indignant—that is, making a moral judgment—for that does nothing; we have to find out what is wrong and put it right, that is, if we possess the requisite and appropriate knowledge. People who did not have that knowledge might adopt an animistic attitude, and address the car as though it were a living thing, cursing, imploring, or reviling, as the feeling took them. This animistic attitude does persist in many ways to-day. There is a law in the State of New Jersey, for instance, which lays it down that a car that has been involved in a fatal accident must be destroyed, and we say of something that will not work properly, "The very devil's in it".

Many people are tempted to apply moral judgments, or adopt the orectic attitude, to animals. Legal trials of animals have not been unknown. But in general, there is a tendency to adopt a cognitive, cause and effect, attitude towards inanimate objects and animals, rather than an orectic or moral one. But we do adopt the latter attitude in regard to human behaviour and relations. Now, psychology is changing that, for moral judgments are being restricted in their field of application and psychological judgments used more and more. This change has been brought about for the same reason as it came about in the case of inanimate objects, namely, that it is more effective. Examples are many. In the past, the mentally deranged were treated as criminals, that is, they were regarded from a moral point of view. There has been a great improvement since they have come to be regarded from the scientific point of view, that is, as unfortunates whose state is the result of some bodily or mental cause, and who may often be cured; they are not blameworthy, nor vicious. So in education, understanding is replacing censure. The backward child, for example, does not deserve blame for being unable to keep up with his fellows, but requires investigation and treatment, for there are usually causes for such backwardness, causes which may be removed. So in the treatment of criminals; punishment alone is insufficient and may, far from acting as deterrent, merely provoke to further crime and the inculcation of a grouse against society. We need to adopt a scientific rather than an orectic attitude towards crime and criminality if we are to deal with the one and diminish the other.

So in politics—more and more people are realising that the best way to conclude a peace treaty with a defeated enemy, for example, is to lay down terms that will not upset too much the susceptibilities and feelings of the vanquished, if we are to make sure that the defeated nation will co-operate in carrying out the provisions of the treaty. We have learned, painfully, that penal treaties are little

use and only serve to rouse rebellious tendencies in those who are penalised, who feel their national dignity and values are affronted. The way of giving way to feelings of moral outrage, the demands for revenge for atrocities—real or alleged—for reparations and punishment, do not work ; treaties based on such attitudes only sow the seed of future wars. So in religion—we are learning to look at customs and beliefs, at rites and practices, with a detached and scientific air, in an effort to separate the wheat from the chaff, to eliminate what is only wishful thinking or projections of our own ideas, from what is to be rationally inferred from confirmed evidence. Such an attitude will not, as some people mistakenly suppose, lead necessarily to the elimination of religion, but it will ensure that much that now passes for truth is seen to be far different ; no religion that is based on truth need ever fear any investigation.

It is only when men fear scientific inquiry that one begins to wonder whether there is not something that cannot stand inquiry. Religion, as such, is no concern of psychology, nor of any other science, since science deals with the measurable and the material, and not with the spiritual, but that is no reason why the psychologist should not investigate the mental state of those who claim to possess a religious consciousness, who are in a mystic state, or who believe in the apparently unprovable. The psychologist is not concerned with whether a certain set of religious beliefs is true or false, but he is interested in the minds of those who accept those beliefs ; he is interested in the variations in belief and practice of the members of the various denominations ; it is his business to apply "Occam's Razor" in seeking explanations of phenomena deemed occult or miraculous, so that he may see whether there is not some more normal explanation possible to account for them.

Thus, in the mental sphere, in the relations between men and women, in human behaviour and its motivation, the scientific attitude is being more and more adopted, and

the moral one being used less and less. Just as that change, when applied to the physical world, resulted in more accurate knowledge and greater ability to cure ills and control factors, so it will in the mental sphere. A greater understanding of the human mind and its workings must, inevitably, help in realising that ancient adage quoted above, "Man, know thyself", and only through self-knowledge can any real self-control come.

All of the preceding tends, in the words of one of my students, to inculcate tolerance; the more we learn of the workings of mind, the hidden mainsprings and motives of human actions, the more likely we are to make allowances, to refrain from censure and blame, for we shall then know that humans—ourselves not less than others—wish to act, even if, in fact, they do not do so in practice, in response to urges and drives which are part of our human heritage, rather than in accordance with the codes and conventions of the society in which they live, or with the dictates of reason.

The science of psychology is still very young; we are, as yet, only on the threshold of a new and fascinating world, but a right understanding of what has already been learned about the human mind can, if applied, even now make happier and more useful men and women.

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A SHORT book list is given below for those who may wish to study further. As there are many books available on psychology and its applications, it has been considered necessary to add a few notes by way of explanation and guidance for the beginner.

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Efficient Thinking, Reasoning and Conversation, by T. A. Ryder, in the *Right Way Series*, is concerned with the matters discussed in Chapter III. *Social Psychology*, by McDougall, still remains a classic in that aspect of the science, whilst the following two inexpensive books by Rennie Macandrew can be recommended to those who wish to pursue the subject of sex psychology, *Life Long Love and Friendship, Love Affairs and Marriage*. The former is mainly concerned with rectifying physical or psychological difficulties in marriage.

Havelock Ellis's books on this subject are most valuable. He is probably the greatest authority on normal sex behaviour.

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